

County Borough



of Blackburn.

# Annual Report

UPON THE

# Health of Blackburn

For the Year 1907,

BY

**Alfred Greenwood, M.D.,**


**D.P.H., etc.,**

*Medical Officer of Health, Medical Superintendent to the Fever  
and Smallpox Hospitals and Medical Officer to the  
Education Committee.*



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# Corporation of Blackburn.



## *Members of the Health Committee.*



THE MAYOR (ALDERMAN F. T. THOMAS).

### ALDERMEN :

GARSDEN (*Chairman*).

BILLINGTON.

HAMER.

NEWTON.

RAMSAY.

### COUNCILLORS :

GREEVES (*Vice-Chairman*).

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HEATLEY.

WARD.

JOHNSON.

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M. SHORROCK.

RAMSBOTTOM.

TAYLOR.

GREENSMITH.

MARSDEN.

WAREING.

DUCKWORTH.

BECKETT.

LONSDALE.





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The Local Government Board Tables, the Classification of all Deaths in the Borough, and Table showing Weight of Children attending the Nursing Mothers' Aid Society, are appended to this Report.



# Statistical Summary for 1907.



Area of Borough .....	743 <sup>1</sup> acres
Population at Census, 1901 .....	127,626
Estimated Population to middle of 1907 .....	134,438
Average Number of Persons per acre .....	18.0
Birth-Rate per 1,000 living .....	24.9
Death-Rate           .,           .....	17.0
,,       from Zymotic Diseases .....	1.4
Infant Mortality per 1,000 Births .....	151.7
Total Occupied Houses at 1901 Census .....	27,756
Plans of New Buildings Passed .....	423
Rateable Value .....	£535,236



PUBLIC HEALTH OFFICE,

BLACKBURN,

January 2nd, 1908.

*To the Chairman and Members of the Health Committee  
of the County Borough of Blackburn.*

Mr. Chairman and Gentlemen,

I have the honour to submit to you, in accordance with the regulations of the Local Government Board, my sixth Annual Report on the Health and Sanitary Condition of the Borough for the year ending December 31st. 1907.

The Report contains the Birth and Death Statistics, the measures adopted for the prevention of disease, and the work carried out by this Department.

I thank you for the encouragement and support which you have always given to me.

I am, Mr. Chairman and Gentlemen,

Your obedient servant,

ALFRED GREENWOOD

# REPORT

OF THE

## Medical Officer of Health

FOR 1907.

---

Blackburn is situated chiefly in the valley of the Blakewater, and to a much smaller extent in the valley of the Darwen.

The following are the heights above sea-level in various parts of the town :—

Town Hall .....	377 feet.
Revidge . .....	715 „
Witton . .....	318 „
Intack .....	483 „
Infirmery .....	402 „
Station .....	360 „
Fever Hospital .....	560 „

The rivers join on the western boundary of the borough. On the north side of the Blakewater the land rises after the first few hundred yards rapidly from a height of about 300 to a height of 700 feet. To the south and west of the River Darwen there is also a fairly rapid rise from a height of 300 to 600 feet. The land between the two rivers has at first no great inclination, but towards the south-east it rises rapidly to a height of 650 feet. On the north side the gradients are as high in one or two instances as 1 in 7, and 1 in 10 or 12 are not uncommon. On the south side the steepest slope is 1 in 10. The fall of the

valley of the Blakewater is 86 feet in  $2\frac{1}{4}$  miles or 1 in 138. With few exceptions the falls in the town may be considered good. The deep strata underlying the town are principally the Lower Coal Measures or Gannister Beds. There is a narrow strip of Alluvium in the valley of the Darwen, and Millstone Grit (rock and shale) comes to the surface on the northern side of the borough over a considerable area, and to a very small extent on the southern side. The Gannister Beds underlie nearly the whole of the town proper, and those parts which have Millstone Grit for their deep strata are chiefly agricultural land. With one or two small exceptions the deep strata are covered with drift beds. Throughout the greater part of the borough the drift beds are principally composed of clay. There is, however, a considerable piece of land in the centre of the town covered with a good depth of pure sand. I cannot map it out correctly, but it includes the land on which the Town Hall, the Market House, the Parish Church, and the Railway Station are built. It extends northwards as far as Regent Street and Richmond Terrace. To the west it extends as a narrow elongated strip as far as Witton Stocks.

This district can be understood better by referring to the Enumeration District Map.\* The districts which have sandy subsoil are Nos. 5, 6, 41, 42 in the Southern Division, Nos. 19, 32, 33, 34 in the Northern Division, and No. 2 in the Witton and Livesey Division; and besides these Nos. 43, 44, 45 in the Southern Division, Nos. 28, 31 in the Northern Division, and Nos. 3, 4, and 6 in the Witton and Livesey Division, are partly sand and partly clay. The sand varies considerably in its purity in different localities. In the neighbourhood of Church Street, Mincing Lane, Weir Street, Clayton Street, and King Street it is of a clean reddish colour, and reaches, in some instances, to a depth of 15 to 20 feet, or possibly more. In the neighbourhood of Galligreaves Street and between Galligreaves Street and Whalley Banks, the sand was originally overlaid with a varying thickness of clay, but this was mostly removed before the land

\*This Map has been remodelled in accordance with the 1901 Census results—including the added area—and will be found at the end of the Report.

was built upon. To the south of Bank Top and Redlam the subsoil is composed mostly of a mixture of sand, gravel, and clay, whilst to the north of Bank Top and Redlam, as far as the River Blakewater, the subsoil is much purer sand. Over the remainder of the town the drift beds are mostly clay, or clay and gravel.

Millstone Grit comes to the surface along Revidge Road, and to some extent on both sides of the road, but principally to the south. The deep strata are of interest chiefly from the water which is derived from them. The superficial strata or drift beds which form the subsoil are of great importance. Upon its character the dryness of the locality depends to a great extent, and frequently the dryness of the houses built upon it. It has also a very distinct bearing upon all diseases, which are due to soil pollution, and also upon those diseases which are due to damp and cold.

## POPULATION.

The statistics contained in this Report are based upon the population estimated to the middle of 1907, viz., 134,438.

The desirability of the accuracy of this figure is obvious, as upon it depend the various death-rates, etc.

Such accuracy will diminish yearly until the next Census in 1911, and, as has been pointed out frequently, the difficulty would be met, to a great extent, by the institution of a Quinquennial Census. This would have involved a Census in the year 1906, and would have obviated some inaccuracy of statistics from now until 1911. It would also facilitate greatly any local or general comparisons.

The increase in the population of Blackburn from 1841 to 1907 may be seen in Table IV.



TABLE I.

YEAR.	Population at Census.	BIRTHS.	DEATHS.	Natural Increase in 10 year periods, also expressed as percentage of population.	Excess of Immigration over Emigration in 10 year periods, also expressed as a percentage of population.	Total Increase in 10 year periods, also expressed as a percent- age of the population.
1841	36,629		955			
1842			945			
1843			1220			
1844			1143			
1845			1124			
1846			1488			
1847			1445			
1848			1214			
1849			1125			
1850			1315			
1851	46,536	2035	1264			
1852		2000	1697			
1853		2130	1758			
1854		2241	1320			
1855		2181	1781	6859	9731	16590
1856		2324	1330	14.7 %	20.9 %	35.6 %
1857		2372	1824			
1858		2277	1847			
1859		2479	1547			
1860		2675	1487			
1861	63,126	2773	1774			
1862		2754	1815			
1863		2568	1440			
1864		2730	1746			
1865		2737	1881	9211	4002	13213
1866		2775	2146	14.5 %	6.3 %	20.9 %
1867		2915	1867			
1868		3155	1961			
1869		3007	2337			
1870		3082	2318			
1871	76,339	3166	2033			
1872		3463	2050			

TABLE I—Continued.

YEAR.	Population at Census.	BIRTHS.	DEATHS.	Natural Increase in 10 year periods, also expressed as percentage of population.	Excess of Immigration over Emigration in 10 year periods, also expressed as a percentage of population.	Total Increase in 10 year periods, also expressed as a per- centage of the population.
1873		3227	2462	10820 14·1 %	16855 less 12056 = 4799 or 6·2 %	27675* less 12056 = 15619 or 20·4 %
1874		3305	2432			
1875		3412	2200			
1876		3425	2435			
1877		3518	2134			
1878		3456	2742			
1879		3418	2174			
1880		3386	2294			
1881		3919	2431			
1882		3918	2665			
1883	104,014	4305	2660	13186 12·6 %	2864 2·7 %	16050 15·4 %
1884		4132	2663			
1885		4000	2452			
1886		4004	2863			
1887		4164	2974			
1888		4111	2865			
1889		4150	3077			
1890		4015	2882			
1891		4085	3116			
1892		3883	2551			
1893	120,064	3822	2793	10853 9·04 %	-3291 -2·7%	7562 6·3 %
1894		3621	2173			
1895		3899	3084			
1896		3552	2269			
1897		3629	2529			
1898		3662	2439			
1899		3643	2607			
1900		3438	2820			
1901		3386	2495			
1902		3357	2247			
1903	127,626	3304	2069			
1904		3100	2274			
1905		3193	2183			
1906		3418	2193			
1907		3348	2293			

\* The population of the added portions of Witton, Livesey, Lower Darwen and Little Harwood are here deducted.

Between 1871 and 1881 the following additions were made to the Borough. In July, 1877: Livesey (part of) 4449; Witton (part of) 4180; Little Harwood (part of) 33. In July, 1879, Lower Darwen (part of) 2712; Little Harwood (part of) 682.

In November, 1901, parts of Witton and Livesey were added to the Borough.

TABLE II.

Age Periods.	Population estimated to the middle of 1907.	
	M	F
Under 5	6334	6233
5 — 15	12549	13700
15 — 25	12787	15670
25 — 35	9830	12481
35 — 45	8637	10567
45 — 55	6087	6955
55 — 65	3511	4392
65 — 75	1517	2158
75 and upwards	402	628
Total.....	61654	72784

## MARRIAGES.

The number of Marriages solemnised within the Borough of Blackburn during 1907 was 1,305, which is 24 in excess of the number for 1906.

Of these 681 took place in the Established Churches and 624 in Nonconformist places of worship and at the Register Office.

There were no marriages in the Jewish Synagogue during the year.

The annual rate of persons married per 1,000 of the population was 19.4 during the year 1907.

The marriage rates for the five previous years were as follows :—

1902	.....	17.3
1903	.....	16.1
1904	.....	17.7
1905	.....	19.4
1906	.....	19.1

Therefore, there has been a distinct sustained rise in the marriage rate of the borough during the last three years. This increased rate appears to correspond with the prosperous state of trade.

### BIRTHS.

The number of Births registered during the year in Blackburn was 3,348, of which 1,747 were males and 1,601 females, equal to a birth-rate of 24.9 per 1,000 living.

The birth-rate for 1906 was 25.5 per 1,000. In 1881 it was 37.5 per 1,000.

The birth-rates in 1907 for England and Wales were as follows :—

England and Wales	.....	26.3	per 1,000 living.
76 Great Towns	.....	27.0	,,
142 Smaller Towns	.....	25.7	,,
England and Wales (less the 218 towns)	.....	25.6	,,

It will, therefore, be seen that the 1907 birth-rate for Blackburn was 2.1 per 1,000 less than the average birth-rate for the 76 large towns of England and Wales.

Also a reference to Table XI. will show that only eight of the 33 large towns named in that table had a lower birth-rate than Blackburn during the year 1907.

In England and Wales the birth-rate has been falling continuously for the last 30 years, and it reached its lowest recorded level during 1906, namely, 27.1 per 1,000. This birth-rate is 0.1 per 1,000 below that for 1905, and 1.6 per 1,000 below the average of the previous ten years.

At the same time the death-rate for England and Wales has fallen during the 15 recorded years from 20.2 per 1,000 in 1891 to 15.4 in 1906.

Also for many years there has not been any marked decline in the marriage-rate, and this rate is closely associated with the birth-rate. The fact that the marriage-rate is not decreasing, and that the birth-rate is diminishing, shows that although about as many people are married each year, fewer children are born.

This question, therefore, becomes one of national concern. It is easy to point to some of the causes, but it is most difficult to suggest practical remedies.

Of the 3,348 Births, 128 were illegitimate, equal to a percentage of 3.8. Similar percentages for the years 1904, 1905, and 1906 were 4.4, 3.8, and 3.9 respectively.

During the year inquiries have been made for the second time respecting the illegitimate births.

Of the 128 illegitimate births, 63 were males and 65 females.

Twenty of these Births occurred in the Union Workhouse.

The following is a summary of the results of visits, which contains some very interesting information :—

As to the occupation of parents, the following information was obtained :—

Mothers.

Weavers	28
Servants	16
Winders	11
House Duties	10
Cardroom Hands	6
Ring Spinners	6
Charwomen	4
Shopkeepers	3
Paper-Bag Makers	2
Factory Hand	1
Laundress	1
Hawker	1
Dressmaker	1
Baker	1
Not ascertained	17

Fathers.

Weavers	9
Labourers	8
Carters	7
Travellers	4
Foundrymen	4
Mill Hands	4
Soldiers	4
Hawkers	3
Tinplateworkers	2
Tram Drivers	3

Fruiters	3
Clerks	2
Blacksmiths	2
Shopkeepers	2
Spinners	2
Farm Labourers	2
Taper	1
Clothlooker	1
Overlooker	1
Painter	1
Joiner	1
Grocer	1
Greengrocer	1
Butcher	1
Publican	1
Manufacturer	1
Printer	1
Coachman	1
Gardener	1
Postman	1
Bricksetter	1
Brickmaker	1
Stonemason	1
Contractor	1
Porter	1
Coal Dealer	1
Not Known	10
Not Ascertained	17

As to the method of feeding, it was found that—

28	were fed on the breast.
16	„ with breast and spoon.
14	„ „ boat-shaped bottle.
12	„ „ long-tube bottle.
10	„ „ breast and long-tube bottle.
4	„ „ breast and boat-shaped bottle.
2	„ „ tube-shaped bottle.
1 was	„ „ spoon.

In 17 instances this information could not be ascertained.

Respecting the place of nursing, the following particulars were obtained :—

70	were nursed at home.
12	.. .. by neighbours away from home.
1	was „ by aunt away from home.
15	had removed.
6	were dead.
4	were not ascertained.

The Sanitary conveniences were as follows :—

At 54	houses	there	were	fresh	water	closets.
„ 42	„	„	„	„	pail	closets.
„ 8	„	„	„	„	privies.	
„ 4	„	„	„	„	slop-water	closets.

Of the backyards at these houses—

49	were flagged.
24	„ flagged and cobbled.
17	„ cobbled.
11	„ part flagged.
3	„ asphalted.
2	„ flagged and gardened.
2	houses had no backyard.

As to the condition of these houses, it was found that—

35	were clean
28	„ fairly clean.
14	„ very clean.
14	„ dirty.

In 17 instances particulars could not be obtained owing to removal from the town.



TABLE III.—ILLEGITIMATE CHILDREN.

Ward.	No. of Births.	Total number of deaths at all ages	Deaths under 1 year of age.
St. Stephen's .....	11	2	1
Trinity .....	9	3	2
St. Michael's .....	10	1	1
St. John's .....	8	2	2
St. Silas' .....	5	0	0
St. Paul's .....	13	7	6
St. Peter's .....	9	8	5
St. Mary's .....	8	5	4
St. Matthew's .....	9	4	3
St. Thomas' * .....	30	5	4
Park .....	4	1	0
St. Luke's .....	3	4	2
St. Mark's .....	6	3	2
St. Andrew's .....	3	1	1
Borough .....	128	46	33

\* The Workhouse is situate in this Ward.

The percentage of deaths of illegitimate children under one year of age to the total number of illegitimate births registered during the year was 25·7.

## STILLBORN CHILDREN.

The total number of stillborn children brought to the Cemetery during 1907 was 184, compared with 194 during 1906.

The following shows the number for each month :—

Jan.	Feb.	March	April	May	June
10	14	19	8	17	19
July	Aug.	Sept.	Oct.	Nov.	Dec.
11	16	16	11	19	24

## DEATHS.

In the following tables (V. to XIII.) will be found classifications of the deaths in Blackburn during 1907, according to age, disease, locality, period, and also comparisons with other towns.

During 1907 there were 2,293 deaths, of which 1,130 were males and 1,163 females.

Adjustment has been made for those persons who belonged to outside districts and who died in Blackburn, and for Blackburn residents who died in outside districts.

The number of non-residents who died in institutions in this borough was 104, compared with 107 such deaths during 1906.

These came from the following districts, viz. :—Darwen, 46 ; Oswaldtwistle, 13 ; Great Harwood, 8 ; Church, 7 ; Clayton-le-Moors, 7 ; Clitheroe, 3 ; Rishton, 3 ; Haslingden, 4 ; Accrington, 2 ; Billington, 2 ; and Pleasington, Preston, Ramsgreave, Ribchester, Sabden, Samlesbury, Wheelton, Wigan, and Yate and Pickup Bank one each.

The number of deaths amongst Blackburn residents occurring in districts outside was 45, compared with 37 during 1906.

These deaths occurred at the Infirmary, Wigan ; Workhouse, Bradford ; Cottage Hospital, Accrington ; St. Mary's Hospital, Manchester ; Culcheth Hall, Manchester ; Private Nursing Home, Manchester ; Private Residence, Scarborough ; Private Residences, Blackpool.

Notifications of Deaths in Blackburn occurring amongst residents of other districts are sent half-yearly to the Medical Officers of Health of those districts, in order to facilitate accuracy of death statistics.

The resulting death-rate is equal to 17.0 per 1,000, which is only slightly higher than the rate for the year 1906.

Although this rate is 1.6 per 1,000 higher than the 1907 death-rate for the 76 great towns of this country, it is 1.4 per 1,000 lower than the average death-rate of Blackburn for the ten years 1897 to 1906.

During the last 60 years the death-rate of Blackburn has diminished practically 50 per cent.

The following were the death-rates for England and Wales during 1907 :—

England and Wales .....	15.0	per 1,000 living.
76 Great Towns .....	15.4	..
142 Smaller Towns .....	14.5	..
England and Wales (less the 218 towns) .....	14.7	..

The increase in the number of Deaths for 1907, as compared with 1906, was in the following diseases :—Influenza, Whooping Cough, Puerperal Fever, Tubercular Meningitis, Phthisis, Cancer, Developmental Diseases, Old Age, Organic Heart Disease, Bronchitis, Pneumonia, Diseases of the Stomach, and Bright's Disease.

The increase was especially marked in Influenza, Bronchitis, and Pneumonia.

The decrease in the number of Deaths for 1907, as compared with 1906, was in the following diseases:—Measles, Scarlet Fever, Diphtheria, Epidemic or Zymotic Enteritis, Meningitis, and Suicide.

The decrease was especially marked in Measles, Diarrhœa, and Epidemic or Zymotic Enteritis.

The largest numbers of Deaths at all ages during 1907 were from Bronchitis, Pneumonia, Organic Diseases of the Heart and Old Age, which claimed 266, 228, 198, and 161 victims respectively.

On referring to Table X. it will be seen that during 1907 the lowest death-rates occurred in St. Silas's, St. Michael's and St. Andrew's Wards, with rates of 12.5, 13.9, and 14.6 per 1,000 respectively.

The highest Ward death-rates occurred in St. Peter's, St. Mary's and St. Luke's Wards, namely: 24.7, 22.5, and 19.8 per 1,000 respectively.

Reference to Table X. will show that during 1907 the birth-rate and the death-rate in St. Peter's Ward were the same.

Again, as in previous years, Table X. also shows the striking difference in the death-rates from Phthisis in the various Wards.

The Wards with a Phthisis death-rate under one were St. Silas's, St. Michael's, Trinity, St. Andrew's, St. Paul's, Park, and St. Stephen's Wards.

Those with a Phthisis death-rate above one were St. Peter's, St. Mary's, St. Thomas's, and St. Luke's.

St. Matthew's and St. Mark's Wards had a Phthisis death-rate each of one per 1,000.

Table V. shows that the lowest death-rates occurred between the ages of five and 45 years, and that the death-rates amongst males and females were greatest at the extremes of life.

From Table VI. it will be seen that the highest monthly death-rates occurred during January, February, March, April and May, and were due chiefly to Lung Diseases.

During the summer months the death-rate was very low owing to the small amount of Epidemic Diarrhœa.

The highest weekly death-rates, as shown in Table IX., occurred in the week ending January 12th, when it was 24.3 per 1,000.

The lowest weekly death-rates occurred in the weeks ending October 26th and September 21st, namely, 10.4 and 10.8 per 1,000 respectively.

TABLE IV.

Year.	Popu- lation in Census Years.	Popula- tion esti- mated to middle of year.	Birth Rate.	Death Rate.	Average Death rate in 10 year periods.	Year.	Popula- tion in Census Years.	Popula- tion esti- mated to middle of year.	Birth Rate.	Death Rate.	Average death rate in 10 year periods.
1841	36,629	36,849		29.9	29.02	1871	76,339	76,695	41.1	26.5	26.5
1842	...	37,742		25.0		1872	...	78,136	44.3	26.2	
1843	...	38,656		31.5		1873	...	79,604	40.5	30.9	
1844	...	39,593		28.8		1874	...	81,099	40.7	29.9	
1845	...	40,552		27.7		1875	...	82,624	41.2	26.6	
1846	...	41,534		35.7		1876	...	84,716	40.4	28.7	
1847	...	42,541		33.9		*1877	...	90,089	39.0	23.6	
1848	...	43,571		27.8		1878	...	96,031	35.9	28.5	
1849	...	44,627		25.2		†1879	...	98,869	35.5	21.9	
1850	...	45,708		28.7		1880	...	102,716	32.9	22.2	
1851	46,536	46,892	43.3	27.0	29.47	1881	104,014	104,388	37.5	22.4	23.83
1852	...	48,344	41.3	35.1		1882	...	105,897	36.9	24.3	
1853	...	49,841	42.7	35.2		1883	...	107,427	40.0	23.9	
1854	...	51,384	43.6	25.6		1884	...	108,980	37.9	23.6	
1855	...	52,974	41.7	33.6		1885	...	110,555	36.1	21.3	
1856	...	54,614	42.5	24.3		1886	...	112,153	35.6	24.7	
1857	...	56,306	42.1	32.2		1887	...	113,774	36.5	25.3	
1858	...	58,049	39.2	31.8		1888	...	115,418	35.6	24.0	
1859	...	59,846	41.4	25.8		1889	...	117,086	35.5	25.4	
1860	...	61,699	43.3	24.1		1890	...	118,780	33.8	23.4	
1861	63,126	63,434	43.7	27.9	27.83	1891	120,064	120,245	33.9	25.9	21.32
1862	...	64,681	42.5	28.1		1892	...	120,972	32.0	21.0	
1863	...	65,953	38.9	21.8		1893	...	121,704	31.4	22.9	
1864	...	67,249	40.5	25.9		1894	...	122,440	29.5	17.7	
1865	...	68,572	39.9	27.4		1895	...	123,181	31.6	25.0	
1866	...	69,920	39.6	30.7		1896	...	123,926	28.6	18.3	
1867	...	71,294	40.8	27.5		1897	...	124,675	29.1	20.2	
1868	...	72,696	43.3	26.9		1898	...	125,430	29.1	19.4	
1869	...	74,125	40.5	31.5		1899	...	126,185	28.8	20.6	
1870	...	75,583	40.7	30.6		1900	...	126,951	27.0	22.2	
						1901	127,626	127,823	26.5	19.5	
						1902	...	130,239	25.7	17.2	
						1903	...	131,079	25.2	15.7	
						1904	...	131,908	23.5	17.2	
						1905	...	132,742	24.0	16.4	
						1906	...	133,583	25.5	16.4	
						1907	...	134,438	24.9	17.0	

\* Part of Witton, Livesey, and Little Harwood—population 8,662.  
Half of this has been added to 1877 population

† Part of Little Harwood and Lower Darwen—population 2,394.  
Half of this has been added to year 1879 population.

|| Part of Witton and Livesey added in November, 1901.



TABLE V.

1907.

AGE PERIODS.	MALES		FEMALES.	
	Deaths.	Death Rate	Deaths.	Death Rate.
0-5	429	67.7	337	54.0
5-15	34	2.7	39	2.8
15-25	38	2.9	51	3.2
25-35	45	4.5	65	5.2
35-45	97	11.3	93	8.8
45-55	118	19.3	118	16.9
55-65	149	42.4	162	36.8
65-75	144	94.9	186	86.1
75 and upwards.	76	189.0	112	178.3

TABLE VI.

Monthly Births and Deaths for 1907.

Month.	Birth Rate.	Death Rate	Measles.	Scarlet Fever	Whooping Cough.	Croup.	Typhoid Fever.	Diphtheria	Diarrhoea	Lung Diseases.	Tuberculosis.	All Other Diseases.
January	25.4	21.1	...	2	4	...	2	2	3	59	25	145
February ...	24.7	20.8	..	1	8	1	2	3	2	56	19	131
March ...	25.5	18.2	..	3	5	1	...	2	...	46	24	132
April ...	28.4	19.0	2	..	7	...	...	1	5	56	8	133
May ...	24.8	17.9	2	3	2	...	1	3	4	56	26	118
June ...	25.5	13.4	8	3	2	...	...	...	3	33	16	92
July ...	26.4	14.4	12	3	2	1	...	3	6	19	17	102
August .....	23.1	13.3	12	2	4	1	1	...	4	23	16	91
September	23.1	12.7	3	...	2	...	1	1	6	17	16	95
October ...	22.8	16.1	3	2	1	...	3	...	18	35	13	112
November...	24.9	17.2	2	...	...	...	...	2	3	55	19	110
December...	23.6	15.8	1	2	3	...	2	...	2	47	23	101



TABLE VII.—(SHORTER SCHEDULE B)

CAUSE OF DEATH.	0—1		1—5		5—15		15—25		25—65		65 & up		M.	F.	To- TAL.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
Smallpox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles .....	7	7	10	21	...	...	...	...	...	...	...	...	17	28	45
Scarlet Fever .....	...	1	3	10	1	5	...	...	...	1	...	...	4	17	...
Typhus Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza .....	...	...	1	1	...	...	1	1	15	13	3	9	20	24	...
Whooping Cough .....	8	9	12	10	1	1	...	...	...	...	...	...	21	20	41
Diphtheria & Membranous Croup .....	1	1	3	4	2	5	1	...	...	...	...	...	7	10	17
Croup .....	1	...	3	...	...	...	...	...	...	...	...	...	4	...	4
Enteric Fever .....	...	...	...	...	1	1	...	2	5	4	...	...	6	7	13
Other continued Fevers .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cholera .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhœa .....	7	9	4	1	1	...	...	...	...	3	2	...	14	13	27
Plague .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic or Zymotic Enteritis .....	16	8	1	3	...	...	...	...	1	...	...	...	18	11	29
Enteritis .....	...	...	...	...	...	...	...	...	1	1	...	2	1	3	4
Erysipelas .....	...	1	...	...	...	...	1	...	2	...	...	...	3	1	4
Puerperal Fever .....	...	...	...	...	...	...	...	3	...	9	...	...	...	12	12
Other Septic Diseases .....	1	2	...	...	...	...	...	...	...	...	...	...	1	2	3
Intermittent and Malarial Cachexia .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis of Meninges .....	6	2	11	6	4	5	...	...	1	1	...	...	22	14	36
Phtlisis .....	1	...	...	1	1	2	10	12	65	40	1	...	78	55	133
Other Tuberculous Diseases .....	13	8	5	7	2	1	1	4	5	6	1	...	27	26	53
Malignant Disease (Cancer) .....	...	...	1	...	...	...	...	...	32	47	12	21	45	68	113
Premature Birth .....	51	26	...	...	...	...	...	...	...	...	...	...	51	26	77
Developmental Diseases .....	15	15	3	...	...	...	...	...	...	...	...	...	18	15	33
Old Age .....	...	...	...	...	...	...	...	...	6	8	57	90	63	98	161
Meningitis .....	3	2	...	...	...	...	1	2	...	1	...	...	4	5	9
Inflammation and Softening of Brain .....	...	...	...	...	...	...	...	...	4	2	4	2	8	4	12
Organic Diseases of Heart .....	3	1	...	1	6	6	2	7	45	61	29	37	85	113	198
Venereal Diseases .....	2	1	...	...	...	...	...	...	...	1	...	...	2	2	4
Bronchitis .....	34	18	10	17	...	...	...	...	44	45	41	57	129	137	266
Pneumonia .....	43	29	21	27	4	3	5	3	37	39	10	7	120	108	228
Pleurisy .....	...	...	...	1	...	1	...	...	1	1	1	...	2	3	5
Other Respiratory Diseases .....	...	...	...	...	...	...	...	...	1	...	2	...	3	...	3
Diseases of Stomach .....	5	...	...	...	...	...	...	2	3	9	2	4	10	15	25
Obstruction of Intestines .....	1	2	...	...	...	...	...	...	...	4	1	4	2	10	12
Cirrhosis of Liver (Alcoholism) .....	...	...	...	...	...	...	...	...	13	6	1	1	14	7	21
Nephritis & Brights Disease .....	2	...	1	2	1	1	5	1	19	24	3	7	31	35	66
Tumour and other Affections of female genital organs .....	...	1	...	...	...	...	...	...	...	3	...	...	...	4	4
Accidents and Diseases of Parturition .....	...	...	...	...	...	...	...	2	...	15	...	...	...	17	17
Deaths by Suicide .....	...	...	...	...	...	...	...	...	5	1	...	...	5	1	6
Homicide .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deaths from Ill-defined Causes .....	11	9	3	5	3	4	1	2	21	10	9	7	48	37	85
Deaths by Accidents or Negligence .....	6	1	14	6	2	...	4	2	19	4	2	4	47	17	64
All other Causes .....	73	45	13	16	5	4	6	8	64	79	39	46	200	198	398
TOTAL .....	310	198	119	139	34	39	38	51	409	438	220	298	1130	1163	2293

TABLE VIII.

DISEASE.	1901.	1902	1903.	1904	1905.	1906.	1907.	Death Rate.
	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	Total De'ths	
Smallpox .....	...	2	3	...	...	...	...	0 00
Measles .....	94	77	53	60	42	63	45	0'33
Scarlet Fever .....	58	31	13	13	76	33	21	0'15
Whooping Cough .....	22	23	14	96	11	17	41	0'30
Diphtheria .....	62	23	26	11	33	26	17	0 12
Croup .....	8	5	2	...	...	5	4	0'02
Enteric Fever .....	17	23	15	21	15	14	13	0 09
Influenza .....	20	27	27	17	20	22	44	0 32
General Tuberculosis .....	22	18	8	10	17	14	8	0'05
Phthisis .....	150	163	122	125	142	124	133	0'98
Abdominal Tuberculosis...	35	24	28	40	27	34	36	0'26
Tubercular Meningitis and Acute Hydrocephalus...	23	51	47	28	31	24	36	0 26
Other forms of Tuberculosis	12	6	8	8	7	6	9	0'06
Diarrhœa .....	133	70	100	125	93	171	56	0 41
Enteritis .....	44	8	2	3	...	...	4	0 02
Atrophy, Debility, Marasmus.....	52	74	52	67	56	61	51	0'37
Rheumatism, R'matic Fev'r	17	13	16	19	17	13	17	0 12
Cancer .....	91	91	92	107	113	108	113	0 84
Premature Birth .....	68	70	83	80	67	72	77	0'57
Old age.....	99	108	127	153	139	143	161	1'19
Convulsions .....	51	28	36	32	34	40	28	0'20
Inflammation of the Brain or Membranes .....	46	10	8	5	13	18	9	0'06
Apoplexy .....	67	93	76	80	83	102	117	0 87
Other Nervous Diseases	65	71	63	74	73	69	65	0'48
Diseases of Heart and Blood Vessels.....	160	167	190	194	155	185	198	1 47
Bronchitis .....	250	233	211	240	214	178	266	1'97
Pneumonia .....	232	221	229	249	190	180	228	1'69
Cirrhosis of Liver .....	26	24	14	13	14	22	18	0'12
Acute Nephritis, Bright's Disease.....	57	52	48	60	64	49	66	0'49
Burns and Scalds.....	12	13	7	10	12	11	19	0'13
*Causes unspecified .....	109	123	76	50	113	85	85	0'63
All Diseases .....	...	...	...	...	...	...	...	17 05

\* Including all cases not certified by a medical man, and all cases where an inquest was held but no definite cause of death shown.

TABLE IX.

Weekly Births and Deaths for 1907.

1907.	Deaths from all causes.	Death Rate per 1,000 per annum.	Deaths from Seven Principal Zymotics.	Death Rate per 1,000 for Zymotics.	Births.	Birth Rate per 1,000 per annum.
Week ending Jan. 5	57	22.0	4	1.5	79	30.7
" " 12	63	24.3	2	0.7	70	27.0
" " 19	46	17.7	2	0.7	68	26.4
" " 26	53	20.5	4	1.5	64	24.7
" Feb. 2	55	21.2	1	0.3	58	22.4
" " 9	57	22.0	1	0.3	70	27.0
" " 16	67	25.9	4	1.5	64	24.7
" " 23	43	16.6	3	1.1	59	22.8
" March 2	46	17.7	7	2.7	60	23.2
" " 9	59	22.8	2	0.7	76	29.3
" " 16	53	20.5	1	0.3	69	26.6
" " 23	48	18.5	2	0.7	72	27.8
" " 30	37	14.3	4	1.5	63	24.3
" April 6	45	17.1	1	0.3	75	29.0
" " 13	52	20.1	1	0.3	71	27.4
" " 20	48	18.5	3	1.1	75	29.0
" " 27	42	16.2	2	0.7	60	23.2
" May 4	54	20.8	4	1.5	66	25.5
" " 11	50	19.3	3	1.1	68	26.4
" " 18	51	19.7	3	1.1	62	23.9
" " 25	36	13.9	1	0.3	62	23.9
" June 1	44	17.0	2	0.7	69	26.6
" " 8	37	14.3	7	2.7	59	22.8
" " 15	33	12.7	1	0.3	88	34.0
" " 22	36	13.9	1	0.3	63	24.3
" " 29	34	13.1	5	1.9	63	24.3
" July 6	46	17.7	7	2.7	78	30.1
" " 13	33	12.7	2	0.7	56	21.6
" " 20	42	16.2	5	1.9	59	22.8
" " 27	32	12.6	4	1.5	65	25.1
" August 3	30	11.6	4	1.5	65	25.1
" " 10	42	16.2	7	2.7	69	26.6
" " 17	35	13.5	5	1.9	44	17.0
" " 24	30	11.6	...	...	74	28.6
" " 31	29	11.2	2	0.7	55	21.2
" Sept. 7	38	14.6	3	1.1	65	25.1
" " 14	34	13.1	1	0.3	61	23.6
" " 21	28	10.8	2	0.7	60	23.2
" " 28	37	14.3	1	0.3	54	20.8
" Oct. 5	38	14.6	1	0.3	58	22.4
" " 12	46	17.7	3	1.1	57	22.0
" " 19	40	15.4	11	0.3	55	21.2
" " 26	27	10.4	...	...	71	27.4
" Nov. 2	52	20.1	4	1.5	55	21.2
" " 9	40	15.4	1	0.3	57	22.0
" " 16	42	16.2	...	...	70	27.0
" " 23	43	16.6	...	...	63	24.3
" " 30	59	22.8	2	0.7	67	25.9
" Dec. 7	39	15.0	3	1.1	59	22.8
" " 14	40	15.4	2	0.7	63	24.3
" " 21	40	15.4	...	...	62	23.9
" " 28	40	15.4	1	0.3	53	20.5

TABLE X.

WARDS.	Popula- tion.	Deaths	Births.	Death Rate.	Birth Rate.	Deaths under one year per 1000 Births.	Death- rate from six Zymotic Diseases.	Death- rate from Diar- rhoea.	Death- rate from Bron- chitis and Pneu- monia.	Death- rate from Phthi- sis.
ST STEPHEN'S...	9708	151	268	15.5	27.6	126.8	0.3	0.5	3.7	0.9
TRINITY .....	10368	178	277	17.1	26.7	158.8	1.1	0.6	4.5	0.4
ST. MICHAEL'S.	9377	131	215	13.9	22.9	130.2	0.3	0.3	3.0	0.3
ST JOHN'S .....	8021	140	191	17.4	23.8	151.8	0.9	0.4	3.3	0.8
ST. SILAS' .....	10252	129	148	12.5	14.4	108.1	0.4	0.0	3.3	0.3
ST. PAUL'S .....	10168	180	292	17.7	28.7	140.4	0.9	0.09	4.4	0.6
ST. PETER'S.....	7622	189	189	24.7	24.7	211.6	1.0	1.0	4.7	2.4
ST. MARY'S .....	6834	154	164	22.5	23.9	262.1	1.4	0.5	5.2	2.1
ST MATTHEW'S	10039	193	290	19.2	28.8	144.8	1.3	0.5	4.7	1.0
ST. THOMAS' ...	13544	211	295	15.5	21.7	125.4	1.1	0.1	3.3	1.4
PARK .....	9382	146	252	15.5	27.9	146.8	1.1	0.7	2.0	0.6
ST. LUKE'S .....	8815	175	244	19.8	27.6	204.9	1.4	0.4	3.4	1.4
ST. MARK'S .....	9420	156	248	16.5	26.3	145.1	1.6	0.4	2.9	1.0
ST. ANDREW'S...	10888	160	275	14.6	25.2	112.7	0.8	0.09	3.1	0.5
BOROUGH .....	134438	2293	3348	17.0	24.9	151.7	1.0	0.4	3.6	0.9

TABLE XI.

Towns.	Birth Rate.	Death Rate.	Deaths under 1 year per 1000 births	Death rate over one year.	Death rate from the seven Zymotic diseases	Death rate from Diarrhoea.	Death rate from Violence.	Inquest Cases percentage to total Deaths.	Uncertified cause of Death percentage to total Deaths.
London ...	25·7	14·6	115	11·1	1·42	0·32	0·55	9·8	0·1
West Ham	28·5	14·6	131	10·8	2·18	0·66	0·06	8·0	0·02
Croydon ...	25·7	12·4	94	9·9	0·88	0·25	0·41	9·6	0·00
Brighton...	21·1	14·7	112	12·3	0·83	0·32	0·39	8·1	0·05
Portsmouth	27·9	16·0	124	12·5	1·83	0·29	0·65	8·3	1·5
Plymouth...	23·2	14·7	109	12·1	0·85	0·34	0·51	8·7	0·05
Bristol.....	24·3	13·1	100	10·7	0·80	0·32	0·50	9·7	0·2
Cardiff.....	26·0	14·9	132	11·5	1·90	0·34	0·70	8·5	0·05
Swansea ...	32·5	17·9	132	13·5	1·27	0·51	0·68	8·2	0·3
W'h'mpton	26·4	15·2	130	11·6	1·43	0·49	0·40	7·8	0·2
B'rmingh'm	28·3	16·2	148	11·9	1·78	0·43	0·60	4·9	3·3
Norwich ...	24·9	14·6	125	11·4	1·31	0·46	0·37	6·6	0·6
Leicester...	23·2	12·7	132	9·6	0·90	0·31	0·38	7·3	0·7
Nottingh'm	26·8	17·5	165	13·0	2·25	0·63	0·64	6·7	0·6
Derby .....	25·1	14·3	120	11·2	1·61	0·20	0·54	10·2	0·05
Birkenhead	31·2	15·4	109	11·9	1·96	0·31	0·52	7·7	0·6
Liverpool..	31·8	19·0	145	14·1	2·01	0·67	0·75	6·9	2·6
Bolton.....	24·4	16·8	146	13·1	2·49	0·41	0·57	7·1	0·5
Manchester	28·7	18·0	147	13·8	1·73	0·51	0·74	8·0	0·9
Salford ...	29·2	17·7	141	13·5	2·14	0·43	0·55	7·8	0·4
Oldham ...	26·5	19·3	145	15·4	1·51	0·53	0·41	5·2	0·3
Burnley ...	28·5	17·6	158	13·0	1·41	0·69	0·77	7·2	1·3
<b>Blackburn</b>	<b>24·9</b>	<b>17·0</b>	<b>151</b>	<b>13·2</b>	<b>1·43</b>	<b>0·41</b>	<b>0·52</b>	<b>5·5</b>	<b>1·6</b>
Preston	26·8	19·1	158	14·7	1·66	0·54	0·53	3·9	2·9
Hudd'sfield	23·1	17·0	97	14·7	0·77	0·22	0·54	6·0	1·2
Halifax ...	17·4	14·3	104	12·5	0·68	0·18	0·29	5·5	1·0
Bradford...	19·9	14·7	125	12·2	0·89	0·17	0·53	8·0	0·9
Leeds ... ..	24·9	15·3	132	12·0	1·25	0·38	0·55	9·3	0·1
Sheffield ...	30·9	17·1	146	12·5	2·65	0·99	0·57	5·6	2·2
Hull.....	28·8	16·1	127	12·4	1·78	0·37	0·81	9·7	0·9
Sunderland	34·2	19·2	130	14·6	1·85	0·45	0·75	6·4	2·7
Gateshead .	30·7	15·4	137	11·2	1·56	0·37	0·47	3·6	4·4
Newcastle..	29·7	15·9	123	12·2	1·36	0·14	0·52	8·0	0·2



TABLE XII.

Death-rates from Zymotic Diseases in the 33 large towns.

	Small Pox.	Measles	Scarlet Fever.	Diph- theria.	Whooping Cough.	Enteric Fever.	Diarrhoea
London ...	0.00	0.38	0.13	0.16	0.38	0.04	0.32
West Ham	0.00	0.51	0.18	0.24	0.54	0.05	0.66
Croydon ...	0.00	0.05	0.08	0.26	0.23	0.007	0.25
Brighton ...	0.00	0.10	0.00	0.12	0.27	0.02	0.32
Portsmouth	0.00	0.81	0.02	0.29	0.27	0.14	0.29
Plymouth ...	0.00	0.21	0.03	0.12	0.09	0.06	0.34
Bristol .....	0.002	0.09	0.07	0.17	0.10	0.04	0.32
Cardiff .....	0.01	0.95	0.11	0.12	0.30	0.07	0.34
Swansea ...	0.00	0.14	0.05	0.12	0.40	0.04	0.51
Wolverh'ton	0.00	0.22	0.24	0.25	0.16	0.07	0.49
Birmingham	0.00	0.57	0.17	0.18	0.34	0.08	0.43
Norwich ...	0.00	0.02	0.01	0.38	0.33	0.10	0.46
Leicester ...	0.00	0.27	0.17	0.07	0.06	0.02	0.31
Nottingham	0.00	0.77	0.02	0.15	0.51	0.15	0.63
Derby .....	0.00	0.63	0.03	0.42	0.18	0.14	0.20
Birkenhead	0.00	1.10	0.10	0.20	0.15	0.09	0.31
Liverpool ...	0.00	0.38	0.18	0.14	0.43	0.13	0.67
Bolton .....	0.00	1.29	0.17	0.11	0.35	0.14	0.41
Manchester	0.00	0.36	0.16	0.16	0.49	0.05	0.51
Salford ...	0.00	0.44	0.26	0.31	0.61	0.08	0.43
Oldham .....	0.00	0.24	0.12	0.13	0.47	0.03	0.53
Burnley ...	0.00	0.07	0.13	0.13	0.28	0.11	0.69
<b>Blackburn</b>	<b>0.00</b>	<b>0.33</b>	<b>0.15</b>	<b>0.12</b>	<b>0.30</b>	<b>0.09</b>	<b>0.41</b>
Preston .....	0.00	0.21	0.06	0.10	0.60	0.14	0.54
Huddersfield	0.00	0.11	0.06	0.08	0.18	0.12	0.22
Halifax ...	0.00	0.05	0.02	0.26	0.10	0.07	0.18
Bradford ...	0.00	0.17	0.04	0.15	0.27	0.08	0.17
Leeds ...	0.00	0.22	0.11	0.13	0.34	0.05	0.38
Sheffield ...	0.00	0.86	0.23	0.12	0.35	0.09	0.99
Hull .....	0.005	0.66	0.06	0.25	0.37	0.06	0.37
Sunderland	0.00	0.64	0.14	0.27	0.27	0.07	0.45
Gateshead...	0.00	0.46	0.04	0.25	0.36	0.08	0.37
Newcastle ..	0.00	0.44	0.08	0.19	0.47	0.04	0.14

TABLE XIII.

Showing Population, Birth-rates, and Death-rates, for the last 20 years in Blackburn.

Year.	Esti- mated Popu- lation	Birth Rate.	Death Rate.	Zymotic Death rate in- cluding Diarr- hoea.	Death rate from bron- chitis, Pneu- monia & Pleurisy.	Death rate from Phthi- sis.	Death rate from other Tuber- cular Diseases	Deaths under 1 year per 1000 Births.
1888	115,418	35·6	24·0	3·9	5·8	1·5	...	190
1889	117,086	35·5	25·4	5·1	6·8	1·5	0·7	221
1890	118,780	33·8	23·4	2·8	7·0	1·8	0·7	194
1891	120,245	33·9	25·9	4·3	7·6	1·3	0·7	207
1892	120,972	32·0	21·0	2·8	5·1	1·0	0·9	199
1893	121,704	31·4	22·9	4·8	5·3	1·1	1·1	241
1894	122,440	29·5	17·7	2·9	3·9	1·2	0·7	168
1895	123,181	31·6	25·0	6·1	4·7	1·2	1·1	235
1896	123,926	28·6	18·3	1·9	3·8	1·1	0·5	172
1897	124,675	29·1	20·2	3·2	4·0	1·1	0·7	207
1898	125,430	29·1	19·4	2·6	3·6	1·2	0·5	204
1899	126,185	28·8	20·6	2·7	4·4	1·2	0·5	193
1900	126,951	27·0	22·2	3·9	4·8	1·1	0·7	221
1901	127,719	26·5	19·5	3·0	3·7	1·1	0·7	193
1902	130,239	25·7	17·2	1·9	3·5	1·2	0·7	157
1903	131,079	25·2	15·7	1·7	3·3	0·9	0·6	158
1904	131,908	23·5	17·2	2·4	3·7	0·9	0·6	191
1905	132,742	24·0	16·4	2·0	3·0	1·0	0·6	146
1906	133,583	25·5	16·4	2·4	2·7	0·9	0·5	155
1907	134,438	24·9	17·0	1·4	3·7	0·9	0·6	151

TABLE XIV.  
INQUEST CASES.

Natural Causes ... ..	44
Accidents ... ..	38
Burns ... ..	16
Suicide.....	6
Suffocation ... ..	8
Poisoning ... ..	3
Scalds : $3\frac{1}{2}$ years, 2 years, and $1\frac{5}{12}$ years ...	3
Excessive Drinking ... ..	2
Delirium Tremens.....	1
Septic Endocarditis ... ..	1
Heart Failure ... ..	1
Bronchitis ... ..	1
Shock ... ..	1
Accidentally Drowned ... ..	1
Convulsions ... ..	1

Ages of persons burnt :—1 year,  $1\frac{1}{2}$  years, 2 years,  $2\frac{1}{4}$  years,  $2\frac{1}{2}$  years,  $2\frac{3}{4}$  years, 3 years,  $3\frac{1}{2}$  years,  $3\frac{3}{4}$  years, 3 at 4 years, 8 years, 17 years, 24 years, and 72 years.

Ages of persons suffocated :—2 at 3 months, 19 weeks, 7 months, 13 weeks,  $3\frac{1}{2}$  years, 20 years, and 40 years.

There were 127 Inquests held during the year as compared with 128 last year.



In connection with the number of deaths from Burns and Scalds amongst young children which occur annually, I prepared and sent out in card form the following instructions. The cards were taken and fixed in a large number of houses by members of my staff.

## CORPORATION OF BLACKBURN.

### BURNS AND SCALDS.

Many deaths occur from Burns and Scalds amongst young children in Blackburn every year.

A large number of these might be PREVENTED easily.

The following are some of the PRECAUTIONS which you are advised to follow :—

- (1) Never leave children in a room where a fire is burning unless there is a suitable FIRE-GUARD in front of the fire. The fire-guard should be weighted, or fixed in such a way that a child cannot move it.
- (2) Never leave kettles, pans, or jugs of HOT WATER, or full teapots within reach of children.
- (3) Never let children put coal on the fire, or stand on the fender for any purpose.
- (4) Always keep matches and lamp oil where children cannot reach them.
- (5) Always use NON-INFLAMMABLE flannellette or equally safe material instead of the ordinary kind of flannellette for the nightdress.
- (6) Always have at hand plenty of LINEN and a large bottle containing a mixture of Lime Water and Olive Oil in equal parts. Instead of this you may use Linseed Oil or Neatsfoot Oil.

- (7) Never drag off clothing which is sticking to the skin, but cover this part, as well as the exposed burnt or scalded parts, with strips of linen dipped in the Oil. In very severe burns do not try to pull off *any* clothing, but cover up the child until the doctor arrives.
- (8) If a child *does* catch fire, put him on the floor and roll him up in the hearthrug, or in an overcoat, a shawl or a blanket, and try to prevent the flames from reaching the face and head.

ALFRED GREENWOOD, M.D.,

Medical Officer of Health.

*February 20th, 1907.*

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### INFANTILE MORTALITY.

During 1907 the death-rate amongst children under one year of age per 1,000 births was 151.7, compared with 155.9 during 1906, and 146.2 during 1905.

The average infantile death-rate for the ten years 1898 to 1907 was 177.2, so that Blackburn is improving in this respect, although the rate is not yet so low as it might be.

The infantile death-rates for England and Wales during 1907 were as follows :—

England and Wales .....	118	per 1,000 births.
76 Great Towns .....	127	„
142 Smaller Towns .....	122	„
England and Wales (less the 218 towns) .....	106	„

It will, therefore, be seen that the infantile death-rate of Blackburn during 1907 was 24 greater than that of the 76 great towns for the same year.

In Tables XI. and XX. an opportunity has been given for a comparison between Blackburn and many of these towns.

During 1907, 508 deaths occurred under the age of one year out of the total number of deaths, namely, 2,293, i.e., 22.1 per cent.

The greatest number of these deaths under one year during 1907 occurred from lung diseases. The next most frequent causes of death during the first year of life were from premature birth and developmental causes. It is satisfactory to record that diarrhoea caused a much smaller number of deaths than has been previously recorded for Blackburn.

On referring to Table XV. it will be seen that all the Wards had infantile death-rates during 1907 greater than 100 per 1,000 births. It has previously been stated that any infantile mortality over 100 deaths per 1,000 births should be considered to be due to causes which are preventible. This is a standard to which the most vigorous attempts should be made to attain.

In St. Mary's, St. Peter's, and St. Luke's Wards the infantile mortality was over 200 for every 1,000 children born.

This state of affairs also occurred during the year 1906, and demands the most earnest consideration. In fact, this unenviable prominence is characteristic of these three Wards when considering a ten-year period—viz., 1898 to 1907. This fact has been shown graphically in the appended chart.

TABLE XV.

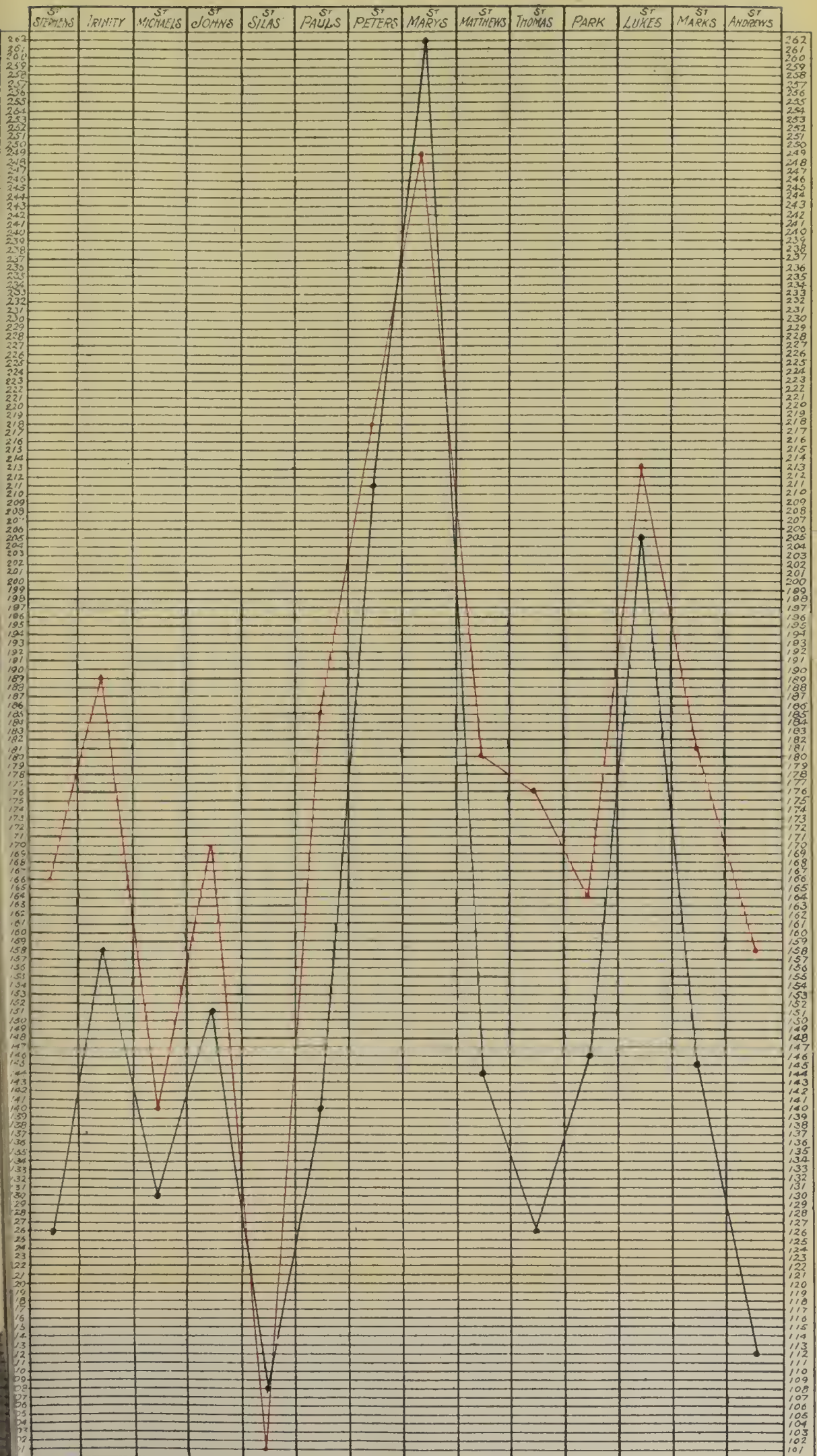
INFANTILE MORTALITY IN WARDS FROM  
1898 to 1907.

WARD.	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	Average for 10 years.
St. Stephen's	195	183	228	145	168·1	123·8	177·0	156·1	157·3	126·8	166·0
Trinity .....	193	207	216	240	143·3	194·4	192·4	182·9	169·4	158·8	189·7
St. Michael's	184	146	184	111	152·4	97·5	132·4	138·3	133·0	130·2	140·8
St. John's ...	228	133	285	165	122·1	177·0	159·2	141·4	140·6	151·8	170·2
St. Silas' .....	45	101	107	156	70·0	122·9	129·2	75·4	97·2	105·1	101·1
St. Paul's ...	186	208	294	180	152·7	161·7	251·8	153·8	127·8	140·4	185·6
St. Peter's ...	326	209	247	238	183·4	181·8	230·3	131·1	230·7	211·6	218·8
St. Mary's ...	312	222	280	385	138·7	229·2	227·9	176·1	257·6	262·1	249·0
St. Matthew's	169	243	219	247	145·1	171·5	195·6	130·9	133·5	144·8	179·9
St. Thomas..	186	205	248	189	195·7	132·0	215·0	132·0	135·8	125·4	176·3
Park .....	182	203	153	148	167·3	170·8	163·7	157·2	148·2	146·8	164·0
St. Luke's ...	229	221	282	231	180·7	166·0	189·8	206·8	224·5	204·9	213·5
St. Mark's ...	237	218	234	156	172·2	149·6	194·6	121·0	187·0	145·1	181·4
St. Andrew's	184	173	205	170	177·1	152·8	205·1	125·0	83·3	112·7	158·8
Borough ...	204	193	221	193	157·8	158·2	191·9	146·2	155·9	151·7	177·2



# Chart 1.

## Infantile Mortality 1898—1907.



RED INDICATES AVERAGE RATE FROM 1898 TO 1907 BLACK INDICATES RATE FOR 1907.



The question which naturally arises is : Why is such a high rate of infant mortality maintained in these Wards? The answer cannot be given readily, but in this connection a few facts are interesting.

In Table XVI. a comparison may be drawn between density, i.e., number of persons per acre, and the average infantile mortality in each Ward from the year 1898 to 1907. It will be seen that in St. Matthew's Ward there is the greatest density, namely, 89.3 persons per acre, and yet the infantile mortality of that Ward is only 179.9, i.e., 2.7 above the average of all the Wards for these ten years. Also in St. Thomas's Ward, where the density is the lowest of all the Wards, the infantile mortality is 176.3 per 1,000 births. On the other hand St. Silas's, St. Stephen's, and St. Andrew's Wards, which have a low density, have also comparatively low infantile mortality rates. Therefore, it may be said that although the density and infantile mortality rates do not correspond exactly, there is some connection between Wards on the outskirts of the Borough and comparatively low infantile mortality rates.

Again, on the one hand it may be pointed out that during 1907 the birth-rate in St. Silas's Ward was extremely low, namely, 14.4 per 1,000, and on the other hand that the birth-rate in St. Luke's Ward was nearly twice as great, namely, 27.6 per 1,000.

Other factors, however, must play an important part such as housing conditions, type and habits of mothers or nurses, etc. In order to ascertain the effect of these, it would be necessary to consider in detail the component parts, such as the enumeration districts of any given Ward or Wards.

I hope that it will be possible to do this during the present year.

TABLE XVI.

POPULATIONS, ACREAGE, DENSITY AND AVERAGE  
INFANTILE MORTALITY IN WARDS.

Name of Ward.	Population.	Acreage.	Density, <i>i.e.</i> , No. of Persons per Acre.	Average Infantile Mortality from 1898 to 1907.
St. Stephen's...	9708	1158·849	8·3	166·0
Trinity .....	10368	144·697	71·6	189·7
St. Michael's...	9377	630·361	14·8	140·8
St. John's .....	8021	102·319	78·3	170·2
St. Silas' .....	10252	993·871	10·3	101·1
St. Paul's .....	10168	123·476	82·3	185·6
St. Peter's.....	7622	134·198	56·7	218·8
St. Mary's.....	6834	171·282	39·8	249·0
St. Matthew's...	10039	112·344	89·3	179·9
St. Thomas' ...	13544	1721·649	7·8	176·3
Park .....	9382	654·017	14·3	164·0
St. Luke's ....	8815	154·275	57·6	213·5
St. Mark's.....	9420	404·842	23·5	181·4
St. Andrew's...	10888	925·427	11·7	158·8
Borough .....	134438	7431·607	18·0	177·2



In Table XVII. I have arranged, as in previous years, the deaths under one year for 1907, according to days, weeks and months, and the following conclusions may be drawn from this analysis :—

- (a) The number of deaths on the *first day* of life was far greater than on any succeeding day, and was greater by 34 than the combined total of deaths on the second, third, fourth, fifth, sixth, and seventh days of life.
- (b) The number of deaths during the *first week* of life was greater by 54 than the combined total of deaths during the second, third, and fourth weeks of life.
- (c) The number of deaths during the *first month* of life was more than three times greater than the number in any succeeding month during the first year of life, and was also equal to about one-third of the total number of deaths in the first year. Again, the number of such deaths during the second and third months were greater than the number during any one of the remaining nine months.

TABLE XVII.—Deaths under One Year, arranged according to Days, Weeks, and Months.

	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd week.	3rd week.	4th week.	Under 1 month.	1 month to 2.	2 months to 3.	3 months to 4.	4 months to 5.	5 months to 6.	6 months to 7.	7 months to 8.	8 months to 9.	9 months to 10.	10 months to 11.	11 months to 12.	Total.
Six Zymotic Diseases .....	1	.	.	.	.	.	.	1	...	...	...	1	1	2	1	2	1	1	2	7	3	4	9	34
Diarrhœa .....	...	...	...	...	...	...	...	...	1	...	...	5	6	5	2	6	4	5	1	6	...	...	...	40
Lung Diseases ...	...	1	...	...	...	...	...	1	...	2	5	8	16	11	10	4	15	11	12	5	11	15	6	124
Convulsions .....	1	2	...	...	...	2	...	5	4	2	2	13	4	2	1	...	1	1	...	...	...	...	...	22
Tuberculosis .....	...	...	...	...	...	...	...	...	...	...	...	...	1	7	2	3	2	2	1	3	...	1	8	30
Debility, Marasmus, Atrophy, Inanition.....	...	...	2	...	2	2	...	4	...	1	3	8	9	2	6	5	2	4	1	5	1	3	2	48
Premature Birth .....	47	7	6	...	2	2	2	64	4	5	...	73	1	2	...	...	...	...	1	...	...	...	...	77
Dentition .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	5	5	1	1	2	17
All others .....	24	4	4	1	1	1	2	37	12	8	5	62	11	11	7	6	5	4	1	1	2	2	4	116
All Causes ...	73	14	12	1	1	7	4	112	21	22	15	170	49	42	29	26	31	30	24	32	18	26	31	508

In order that those children which have died before official notification of their birth has been required by the Registrars, namely, at the age of six weeks, should have the advantage of a lady inspector's visit, the Notification of Births Act was made an adoptive Act by Parliament during 1907, and became law in 1908. The following are the main particulars of this important Act :—

## NOTIFICATION OF BIRTHS ACT.

(7 Edw. 7 ; Chap. 40).

The object of this Act, which will only be in operation where it has been adopted by the Local Authority with the consent of the Local Government Board, or has been declared to be in force by that Board, is to provide a speedy means whereby information of the birth of a child may be given to the Medical Officer of Health of the Local Authority, so that, if necessary, advice may be offered to the mother in regard to the nursing and nurture of the child. It is hoped that in some districts this procedure may lead to an appreciable reduction of the infantile mortality.

The Act may be adopted in London by the Councils of the Metropolitan Boroughs, and outside London by the Borough and other Urban District Councils and Rural District Councils, or by County Councils for the whole county or for any county district therein.

The adoption requires the consent of the Local Government Board, who have also to fix the date on which the resolution of adoption shall come into operation.

Provision is also made which would enable a District Council, after the adoption of the Act by the County Council, to become the Local Authority for their district, or, on the other hand, would enable the County Council to become the Local Authority for a district after the adoption of the Act by the District Council. In these circumstances the Local Govern-

ment Board may, if they think fit, on the application of the District Council or of the County Council, as the case may be, make an order declaring that the Act shall take effect as if it had been adopted by the District Council instead of the County Council, or by the County Council instead of the District Council.

Section 3 of the Act enables the Local Government Board, by order, to declare the Act to be in force in the area of any Local Authority who have the power to adopt it, although it has not been so adopted, if they think this expedient, having regard to the circumstances of the area, and in that case the order of the Board will have the same effect for the purpose as a resolution of adoption duly passed by the Local Authority of the area and assented to by the Board.

In the case of every child born within an area in which the Act is in force, it will be the duty of the father of the child, if he is actually residing in the house where the birth takes place at the time of its occurrence, and of any person in attendance on the mother at the time of, or within six hours after, the birth, to give notice in writing of the birth to the Medical Officer of Health of the Local Authority who are acting in execution of the Act in the area in which the child is born.

The enactment will apply to any child born after the expiration of the twenty-eighth week of pregnancy, whether alive or dead.

The notice is to be given by posting a prepaid letter or post-card addressed to the Medical Officer of Health at his office or residence, giving the necessary information of the birth within 36 hours after the birth, or by delivering a written notice of the birth at the office or residence of the Medical Officer within the same time. The Local Authority are required to supply without charge addressed and stamped postcards containing the form of notice to any medical practitioner or midwife residing or practising in their area who applies for them.

A person who fails to give the requisite notice of a birth will be liable on summary conviction to a penalty not exceeding 20s., but he will not be liable to a penalty if he satisfies the Court that he had reasonable grounds to believe that notice had been duly given by some other person.

The notification is to be in addition to, and not in substitution for, the requirements of any Act relating to the registration of births; and any Registrar of Births and Deaths, whose sub-district or any part thereof is situate within any area in which the Act is in force, is at all reasonable times to have access to the notices of births received by the Medical Officer of Health, or to any book in which those notices may be recorded, for the purpose of obtaining information concerning births which may have occurred in his sub-district.

Sub-section (3) of Section 2 makes it the duty of any Local Authority by whom the Act is adopted, as soon as the consent of the Local Government Board is given to the resolution of adoption, to bring the provisions of the Act to the attention of all medical practitioners and midwives practising in their area.

In bringing the provisions of this Act to the attention of the Local Authorities the Local Government Board observed that in their opinion there is no occasion for imposing upon parents and others the obligation of notifying births unless steps are taken to carry out the ultimate object of the measure, viz., the giving of advice and instruction to those who have charge of the infants, and in ordinary circumstances they would not be prepared to consent to the adoption of the Act unless it appeared that arrangements had been made for this purpose. These arrangements would usually be best carried out by local agencies under the Medical Officer of Health. In exhorting the Local Authorities to consider the question of adopting the Act, the Board urge co-operation with any agency that may exist, so as to secure the successful operation of the Act.

The Act applies, with necessary adaptations, to Scotland and Ireland as well as to England and Wales.



The Local Government Board gave their assent to the adoption of this Act in Blackburn, and it came into force as a result of this sanction on February 5th, 1908.

Another very important measure was adopted in Blackburn during 1907 in connection with preventive measures against infantile mortality, namely, the appointment of two Lady Sanitary Inspectors, who commenced work on April 15th, 1907.

These ladies carry out their work under the direct supervision of the Medical Officer of Health, and their duties consist in visiting homes where births have occurred recently and in giving instructions regarding the feeding and management of these infants. They have also inspected and re-inspected the work of the midwives in this town.

From the date of their appointment until the end of December, 1907, they have paid a large number of visits to houses where births have occurred, and a considerable number of re-visits in order to ascertain whether their instructions had been carried out or not. A more detailed account of these visits appears below. Although as in public health work generally it is not easy to point to successful results for several years, the value of such visits cannot be over-estimated, and I am sure, after a time, the benefits will be obvious.

The following is an account of the work carried out by the two Lady Inspectors between April and December, 1907.

When notifications of births were received weekly from the Registrars, the ladies visited the homes, obtained particulars on a form which I prepared for their guidance, and gave advice to the mothers. The following is a copy of this form :—

Ward.....

No. in Reg.

District.....

## REPORTS ON INFANTS VISITED.

Name ..... Address ..... Sex ..... Leg .....

Removed to ..... Where nursed .....

Date of birth ..... Regd. week ending ..... First visited on.....

Occupations of father ..... Mother .....

Mother's age when 1st child born ..... No. of children living.....

No. dead ..... Doctor or midwife .....

Health of infant ..... Clean ..... Health of mother .....

Work before birth of child ..... Date before .....

Work after birth of child ..... Date after .....

Is the infant breast-fed? ..... Entirely ..... Partly .....

How long ..... If hand-fed ..... By whom .....

Mode of feeding ..... Kind of food .....

Why did mother cease to breast-feed the infant? .....

Comforter used ..... Where child sleeps .....

Clothing ..... Cleanliness of milk utensils .....

Milk got ..... Daily ..... Storage .....

House ..... Remarks .....

Subsequent visits ..... Date .....

Instructions carried out ..... Condition of infant .....

How is infant being fed? .....

I divided the town for this purpose into two districts, one for each lady. These districts correspond to Nos. 1 and 2 and 3 and 4 respectively of those given to the four district male inspectors, full particulars of which are contained in my Annual Report for 1903.

During the period in question the ladies reported on 2,700 infants, obtaining complete reports in 2,640 cases. Change of address occurred in 176 instances before the Inspector's visit.

In 1,270 cases the mothers, and in 722 cases the fathers, were engaged in the cotton industry. 1,260 mothers were occupied in housework.

The ages of mothers at the birth of the first child were as follows :—

Under 20 years .....	273	mothers.
Between 20 and 30 years .....	2257	„
Thirty years and over .....	127	„
	<hr/>	
Total .....	2657	„
	<hr/>	

1,040 of these births were attended by doctors, 1,193 by midwives, and 202 by handy-women. The number of births attended by both doctors and midwives was 205.

The following figures are very interesting :—

Duration of period during which the mothers (other than housewives) remained at home before confinement.

For one month and under .....	412	mothers.
From one to three months .....	324	„
For three months and over .....	433	„
	<hr/>	
Total .....	1169	„
	<hr/>	



Duration of period during which the mothers (other than housewives) remained at home after confinement.

For one month and under .....	197	mothers.
From one to three months .....	236	„
For three months and over .....	96	„
<hr/>		
Total .....	529	„
<hr/>		

It was also ascertained that 218 infants were sent out to nurse after the age of two months.

Many of these infants were born during the first half of 1907, and only represent a small proportion of children nursed out altogether.

The following particulars respecting the feeding of these infants visited are very interesting :—

1,051 infants were entirely breast-fed up to the age of 2 months.

309	„	„	between the ages of 2 and 6 months.
124	„	„	above the age of 6 months.

The total number of breast-fed infants investigated was 1,484.

162 infants were partly breast-fed and partly fed with a long-tube bottle.

172	„	„	„	„	hygienic bottle.
297	„	„	„		from a spoon and cup.

The hygienic bottles include boat-shaped, Maw's, and medicine-shaped bottles. It is worthy of note that many infants fed with a spoon have bread and milk given to them. The long-tube bottle is an extremely bad form of bottle, and is very difficult to clean.

Amongst the *artificially-fed* infants it was found that a long tube bottle was used in 273 cases and a hygienic bottle in 347 cases. In 52 cases other means of feeding were adopted, such as bread and milk, etc.

328 were found to be fed on milk and water only. In 196 cases various proprietary foods were given. The total number of artificially-fed infants was 1,196.

It was also found that 1,875 of the infants visited used a "comforter" or dummy teat. In 744 cases no "comforter" was used.

The number of houses visited which were considered clean was 2,130, and the number of dirty houses was 343.

On re-visiting, the lady inspectors found that their instructions had been carried out in 686 cases and ignored in 447 cases.

An attempt was made to distinguish between the apparent uncleanness of a house inhabited by a large family of young children and a house which showed evidences of neglect.

The dirty condition of the hearthrug was noticed repeatedly. By reason of its structure and position it is the receptacle for all kinds of spilt food, sweepings, etc., which are trodden in until it becomes a veritable mass of organic matter forming a favourable breeding-ground for germs.

This may be one cause of infantile diarrhœa. Efficient ventilation of the rooms was frequently disregarded.

The two lady inspectors are trained nurses, certified midwives, and certificated sanitary inspectors. The great advantages of this triple qualification are obvious, inasmuch as most useful help can be given in nursing infants, inspecting midwives, and reporting numerous sanitary defects which require remedies.

At first owing to prejudice, there was considerable resentment on the part of some mothers in having their infants inspected. To some extent, however, owing to the tact and patience of these two officials, this maternal objection has disappeared, and in certain instances the visit of the inspector is looked for with pleasure, and advice is sought, whereas previously it was refused or ignored when given. This improvement, however, only applies, for the most part, to the more intelligent women. Many of those women who require most teaching are the least teachable and accessible. The latter group, after repeated advice to the contrary, will persist in using foul long-tubed feeding bottles, bread and milk, cheap patent foods, and "anything that is going," for feeding the babies, and, in general, neglecting to do what they should.

It is, therefore, clear that ignorance and prejudice are still formidable factors to combat.

During the year, also, I drew attention to some conditions under which infants are nursed away from their own homes during the daytime whilst their mothers are at work in the mills. This is a sub-section of the problem of infantile mortality which has a special interest in Blackburn.

The Infant Life Protection Act of 1897 is an Act to amend the law for the better protection of infant life, and it repealed the Infant Life Protection Act of 1872. The 1897 Act makes it compulsory on every person retaining or receiving for hire or reward in that behalf more than one infant under the age of five years for the purpose of nursing or maintaining such infants apart from their parents for a *longer period than forty-eight hours* to give notice thereof to the Local Authority within the forty-eight hours. Other provisions of this Act relate to notification of removal of infants, inspection of infants and premises, character of person in charge of such infants, notification of death to the Coroner, etc. There are many defects in this Act which I have pointed out on a previous occasion.

But the class of infant to which I refer is not met by the above-mentioned Act. It is well-known that in many of the manufacturing towns of Lancashire it is the custom to take the babies in the early morning to be nursed during the day whilst the mother is absent at the mill and then to bring them back on the mother's return in the evening. Such children, therefore, are not apart from their parents for a longer period than forty-eight hours. Also the Infant Life Protection Act does not contain any provision for regulating the placing out to nurse of single children.

The distances which these infants are carried twice daily, the amount of clothing in which they are wrapped for these journeys, the character and age of the woman in charge, the kind of house, the quality and quantity of food, vary considerably. For the sake of the infants, it is most undesirable that this possibility of variation should exist.

However, so long as young married women work in the mills, either from choice or compulsion, so long must some provision be made for their infants to be nursed during the day, and it should be our duty to consider and take such steps as will ensure that these infants shall be looked after under the best conditions possible.

It may be said that the situation could be met by the provision of crèches. It is true that these institutions have their advantages, but they are certainly not without considerable disadvantages. A large number would be needed in various parts of the town, and the difficulties regarding the spread of infectious diseases amongst collections of infants might be great. Moreover, if crèches were established the mothers could not be compelled to take their babies to them. Indeed, I believe that some years ago three crèches were established in Blackburn as private ventures, but that they proved failures because the mothers would not use them.

Some idea of the acuteness of this question in Blackburn may be gleaned from the fact that out of a total population of

127,626 at 1901 census about 3,148 married women work in the mills, and that there are about 3,000 births each year.

Also about 500 infants are regularly taken away from their own homes to be nursed during the day in other houses. Of the boarded-out children, of whom particulars have been obtained from January to October, 1907, the mothers returned to work as follows :—

1	mother	returned to work	2	days	after	confinement.
1	„	„	3	„	„	„
1	„	„	1	week	„	„
14	mothers	„	3	weeks	„	„
124	„	„	1	month	„	„
178	„	„	Under	2	months	„

The rest returned after four months.

Infants who are nursed away from home during the day in Blackburn are taken about half-past five every morning, wrapped in a shawl or blanket, where they are placed under the care of a woman, frequently beyond middle-age and unable to look after any child. Similarly they are carried home again about six o'clock in the evening. About five shillings a week is the sum paid to this woman, out of which she provides milk for the child. Sometimes this woman has another child, who may be two or three years old, and for whom she receives an additional sum of four shillings weekly. The other duties of this woman vary, and include washing clothes, baking, etc.

The character of many of these women varies. Some of them are untidy in dress, coarse in language, and careless and intemperate in habits. Other women, of course, are the reverse. Also in the hands of an unscrupulous woman, to whom a certain sum of money has been paid by the mother for the purchase of milk, it is possible that an infant might be kept short of food. I have not met any case of this kind, but only mention the possibility. I am sure, however, that condensed milk is often used as a substitute for fresh cow's milk, when it should not be so used. At many of these houses the milkman only calls once a



day, between 8 and 10 o'clock in the morning, so that these infants are in their temporary residence a few hours without fresh milk. Also the milk is frequently kept uncovered in a dusty place.

Many of these babies change hands periodically. The mother, for various reasons, may "have a few words" with the woman in charge, and the baby is subsequently lodged in another domicile during the day. Sometimes after the Lady Inspector has remonstrated with the woman in charge, the latter has given up the infant, who has again been housed elsewhere. It would thus appear that such a woman objects to any inspection.

Moreover, this frequent change of nurse cannot augur well for these infants, and it also involves considerable difficulty in tracing them.

In other cases where an infant is put out to nurse during the day the outlook is certainly brighter. These infants, when coming under the care of an intelligent, careful woman of an amiable disposition, appear to be as well-cared-for as they are at home. The temporary guardian in such cases bathes the infant every morning, attends carefully to the quality and quantity of food, and to the mode of its administration, in a manner deserving of the highest praise.

The greatest difficulty we have experienced in Blackburn with these temporary nurses has been in respect to the feeding of the infants. The two Lady Inspectors have visited houses and found the woman in charge feeding an infant of three months of age on bread and milk, milk in a dirty long-tubed bottle, biscuits, or even worse. The inspector has pointed out to the woman that such a young infant cannot digest starchy foods, and that fermentation must occur in the stomach if dirty milk or improper food is used. The woman has promised to follow out suitable instructions as a result of this visit. At a subsequent visit the woman is frequently found feeding the infant in the old improper way. On remonstrating with her such answers as these are received:—"The child's mother said it was to have

bread, and I shall take my instructions from her and not from you," or "I have had 11 children, and fed them in my own way." (Sometimes it transpires that she has buried 10 of them). Occasionally the inspector has been told plainly that she was not wanted to visit. Cases like these have occurred over and over again. Considerable difficulty has also been experienced in getting these women to scald the feeding-bottle, and some of them prefer to feed an infant of three or four months old at intervals during the day with a mixture of bread and milk kept in a cup on the top of the oven.

Needless to say any health official would experience much discouragement and disappointment from such results.

Other difficulties which have been experienced in the inspection of these infants temporarily boarded out have been in reference to cleanliness and clothing. Proper baths are seldom given to these children. A common method of so-called cleansing is to lather them with soap, which the woman attempts to wash out ineffectively with water from a can. Precautions are not taken against the infant catching cold during this operation. I have referred previously to the lack of cleanliness in the food utensils. As a rule, there has been less need to find fault with the small amount of clothing, but even this is not always satisfactory. Unclean cradles and damp clothing have been found in some cases. The infants, however, are exposed to great changes of temperature, which certainly is a prolific cause of bronchitis. This need not occasion surprise when it is remembered that an infant is taken from a warm bed and carried a varying distance through the cold street in the early morning, and that this act is repeated at night. I am unable to say in what way this can be avoided. All that can be done in this respect is to advise mothers to wrap them up as thoroughly as possible when they are taken out night and morning, so long as they have to be taken out. This same objection would also apply to crèches. Another difficulty which has been experienced refers to the failure on the part of the woman in charge to inform the mother of the Lady Inspector's instructions.

It is clear, therefore, from what I have stated above, that some change in procedure would be a great help.

In seeking for a remedy which might be suggested, one is confronted with many difficulties. Actual direct compulsion in the correct feeding of these infants would be impracticable in a large town such as this, also over-legislation should be avoided. We can only hope that many of these dangerous prejudices will disappear in time as knowledge spreads. I am afraid, however, that this disappearance in many cases will be synchronous only with the termination of the existence of this mischievous type of Mother Gamp. It is surprising how often young mothers are influenced by certain grandmotherly practices to the detriment of their infants. At the same time, it is worthy of consideration whether or not all women having charge of these infants during the daytime should be compelled to register their names and addresses at the Health Office.

This would indicate that the municipality took cognisance of such women, and would give it the opportunity, with a sufficient and suitable staff of ladies, of visiting and re-visiting at frequent intervals these infants thus temporarily boarded out. If, in addition, the municipality had the power to erase the name from this register of any woman found incapable or unsuitable for this duty, to prevent her, on penalty of a fine, from taking charge of infants again, a great lever would be placed in the hands of those who are anxious to see a reduction in the infantile mortality rate.

Women who were doing their duty, and were anxious for the welfare of the infants under their charge, would not object to registration and inspection.

As I have hinted before, I am doubtful whether many of these women who assume the role of temporary nurses and guardians of infants will ever show much improvement. A few will perhaps improve, and, of course, our present efforts should be continued with unabated vigour. At the same time, in connection with such efforts I believe great hopes for the future lie in two directions, namely :—



- I. Training the older girls in the public elementary schools in the first principles of Hygiene, special stress being laid on the feeding and care of infants. These girls will be mothers themselves some day, and if this desirable knowledge could be inculcated into their minds at a receptive and susceptible age, they would be less likely to be influenced by dangerous prejudices when they have children of their own, or when they have other mothers' children to look after.
  
- II. An improved type of midwife is a very necessary factor when these infants are born. In Blackburn a considerable number of women at confinement are attended by midwives without the presence of any medical man. Also the mother, under these conditions, is influenced for good or for evil, especially at the birth of her first child. There can be no doubt that if these women at child-birth could receive the attention of a careful, clean, intelligent midwife, they would receive much benefit, and there is no doubt whatever that the baby would receive an excellent start during the first two weeks of life. The methods of practice of midwives have, therefore, been investigated, and in many instances a truly deplorable condition has been revealed. Many of the midwives can neither read or write, and are unable to appreciate the rules and directions of the Central Midwives' Board. Many of them are unclean in person or in their methods of work, cannot even take a temperature, and remain in ignorance of the use of antiseptics in their duties. And as to the knowledge of some of them in the correct feeding either naturally or artificially of a young infant, the less said the better.

This may be thought to be beside the subject, but the point which I wish to emphasise is this. If a woman at confinement had the right type of midwife, the baby would have a good start in life, and the mother when she went to work several weeks later would be more likely to insist upon the right kind of woman to look after her baby whilst she was at work in the mill.

It is also worthy of consideration whether or not a number of ladies could be found who would undertake voluntarily to visit and re-visit certain homes where births have occurred. I think it would be necessary for this work to be carried out in connection with the public health administration of the town, and it is very important that all instructions given to mothers should be upon a uniform basis. I feel convinced that in this direction lies a possibility for great good.

Therefore, from the foregoing remarks I think it will be clear that certain infants who are nursed away from their own homes and mothers during the daytime are not fed and nursed under satisfactory conditions, that these conditions are capable of remedy, and that consequently an additional means would be gained by which infantile sickness and mortality might be lessened.

TABLE XVIII. — Deaths under One Year from 1891-1907.

Disease.	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Zymotic Diseases.....	75	62	59	29	107	30	75	17	51	57	36	29	24	54	22	27	34
Diarrhoea .....	90	78	190	58	211	79	112	153	79	143	149	54	78	98	76	136	40
Lung Diseases ... ..	197	153	172	103	124	107	138	114	107	140	100	99	116	139	83	69	124
Convulsions .....	100	98	85	68	63	58	51	51	54	49	40	23	30	30	26	35	22
Tuberculosis .....	50	60	81	45	59	36	46	31	26	45	41	46	38	43	28	20	30
Debility, Atrophy, Marasmus, Inanition..	38	48	23	73	45	48	53	63	39	24	47	69	46	59	54	71	48
Premature Birth, Developmental.....	150	154	111	87	115	82	80	93	105	110	103	90	100	97	86	89	107
Dentition.....	41	20	7	11	26	14	19	12	21	17	18	20	7	10	10	17	17
All Others ... ..	107	103	194	135	170	157	178	216	223	177	122	100	84	65	82	69	86
All Causes .....	848	776	922	609	920	611	752	750	706	762	656	530	523	595	467	533	508

TABLE XIX.—Analysis of Deaths under One Year of Age for the last Eight Years.

	1900.		1901.		1902.		1903.		1904.		1905.		1906.		1907.	
	Deaths.	Rate per 1000 Births	Deaths.	Rate per 1000 Births	Deaths.	Rate per 1000 Births	Deaths.	Rate per 1000 Births	Dea hs.	Rate per 1000 Births	Deaths.	Rate per 1000 Births	Deaths.	Rate per 1000 Births	Deaths.	Rate per 1000 Births
Zymotic Diseases ..	57	16.5	36	10.6	29	8.6	24	7.2	54	17.4	22	6.8	27	7.8	34	10.1
Diarrhoea .....	143	41.5	149	44.0	54	16.0	78	23.6	98	31.6	76	23.8	136	39.7	40	11.9
Lung Diseases .....	140	40.7	100	29.8	99	29.4	116	35.1	139	44.8	83	25.9	69	20.1	124	37.4
Convulsions .. .	49	14.5	40	11.5	23	6.8	30	9.0	30	9.6	26	8.1	35	10.2	22	6.5
Tuberculosis.....	45	13.0	41	12.1	46	13.7	38	11.5	43	13.8	28	8.7	20	5.8	30	8.9
Debility, Atrophy, Marasmus, Inanition	24	6.9	47	13.8	69	20.5	40	13.9	59	19.0	54	16.9	71	20.7	48	14.3
Premature Birth, Developmental..	110	31.9	103	30.4	90	26.8	100	30.2	97	31.2	86	26.9	89	26.0	107	31.9
Dentition .....	17	4.9	18	5.3	20	5.9	7	2.1	10	3.2	10	3.1	17	4.9	17	5.0
All Others.....	177	51.4	122	36.0	100	29.7	84	25.4	65	20.9	82	25.6	69	20.1	86	25.6
All Causes .....	762	221.6	656	193.7	530	157.8	523	158.2	595	191.9	467	146.2	533	155.9	508	151.7

TABLE XX.

28 Large Towns.	Deaths Under One Year to 1,000 Births Registered.														
	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	Average
London .....	143	165	160	158	167	167	160	149	141	131	144	131	132	115	147
Brighton .....	138	164	135	142	181	173	166	160	125	110	134	100	111	112	139
Portsmouth .....	131	174	154	168	156	197	155	162	151	113	141	133	130	124	148
Norwich .....	164	190	164	196	192	179	178	186	156	149	179	174	176	125	172
Plymouth .....	168	178	177	183	170	190	175	149	154	144	173	136	152	109	161
Bristol .....	149	143	142	148	164	158	133	130	130	116	133	122	128	100	135
Wolverhampton ..	165	217	184	217	200	184	206	162	133	141	152	136	140	130	169
Birmingham .....	163	182	197	215	191	191	199	186	156	158	195	155	168	148	178
Leicester .....	162	202	187	205	191	195	175	175	152	161	163	147	166	132	172
Nottingham .....	173	189	168	206	178	210	196	193	158	164	175	155	171	165	178
Derby .....	123	160	150	167	169	162	174	154	124	128	143	151	114	120	145
Birkenhead .....	142	173	176	162	186	183	160	181	148	155	180	127	151	107	159
Liverpool .....	179	210	172	200	184	198	186	187	162	159	196	154	171	145	178
Bolton .....	161	211	168	186	168	181	171	171	134	152	167	166	138	146	165
Manchester .....	159	203	176	194	197	206	189	198	152	168	187	157	166	147	178
Salford .....	173	230	199	220	212	209	207	204	155	166	193	150	160	141	187
Oldham .....	160	189	183	183	175	198	172	172	148	160	155	150	145	145	167
Blackburn .....	168	235	172	207	205	189	221	193	157	159	191	146	155	151	182
Preston .....	203	248	176	263	225	255	236	216	188	161	183	152	200	158	204
Luddesfield.....	169	157	166	130	153	152	132	131	137	120	136	119	135	97	137
Halifax .....	134	157	148	140	163	159	132	127	143	122	130	130	118	104	130
Bradford .....	144	202	141	178	185	181	141	168	138	147	166	144	152	125	158
Leeds.....	155	193	168	191	182	171	183	188	159	153	176	152	152	132	168
Sheffield .....	156	196	172	197	195	194	200	200	149	182	158	167	158	146	177
Hull .....	141	205	173	178	182	175	183	174	137	162	181	153	161	127	166
Sunderland .....	166	188	157	164	202	175	169	181	152	156	165	143	140	130	163
Newcastle-on-Tyne ..	156	186	165	177	190	193	170	178	139	165	156	135	151	123	163
Cardiff .....	141	178	165	150	158	184	141	147	146	122	144	118	135	132	147
Average.....	156	190	168	183	172	186	175	171	147	147	164	143	148	129	



In my Annual Report for 1906 I stated that, apart from the official measures taken by the Health Department, a number of ladies and gentlemen in the town were about to initiate an experiment in order to encourage breast-feeding amongst poor mothers. The work undertaken by these voluntary workers arose out of inquiries made by the Blackburn branch of the Christian Social Union. A society was formed called the "Nursing Mothers' Aid Society," and it is owing to the courtesy of the secretary, Mr. Schofield, that I have been enabled to give certain particulars regarding the work of this Society from its commencement until the end of December, 1907. He has also kindly placed at the disposal of my chief clerk, Mr. Fowler, and myself, charts showing the weekly weighings of the infants under observation. These have been tabulated and reproduced in this report. I considered that it would be of interest to incorporate these particulars in my report in order to give prominence to the useful work which this Society, supported by private subscriptions, is doing, and also to give this as an instance of a voluntary society giving help to the official work of a Health Department. Several medical practitioners in the town have given practical advice and assistance from the inception of this Society.

A five-roomed house was taken in a poor thickly-populated district of Blackburn, namely. No. 10, Mary Ann Street, and a woman who was competent to do plain cooking, and who understood the treatment of children, was engaged as caretaker.

The restaurant was opened on March 21st, 1907, and mothers, or expectant mothers, drawn from the poorer sections of the working classes, were invited to attend, and were offered free a good, plain, well-cooked dinner each day, except Sunday. The period during which the dinners were given to individual women varied from about one month before the birth of the baby to the end of two months after the birth. The number of meals was then reduced, in some cases, to three days per week and in others to two days per week, and a month or six weeks later one dinner per week was given. During the time of actual confinement, and whilst the mothers were necessarily at

home afterwards, the meals were sent to the houses. Some of the cases received were those in which the baby was a few weeks old when the mother began to attend. In several other cases the mother was attending at least one month before the birth of the baby. Again, in special cases, after investigation, the necessary accouchement outfit for mother and infant is lent by the Society for one month.

Many of the cases were recommended by the medical men, relieving officers, and Medical Officer of Health, and those cases not specially recommended as above were visited by the caretaker, who decided whether they were satisfactory or not, and if they were not, they were crossed off the list at the end of two or three days.

One of the conditions imposed upon mothers receiving meals was that they should bring the baby once a week on what was called "weighing day" to be weighed and also to be examined by a medical man. A special chart was kept for each baby, and this was marked each time the baby was weighed and the general condition recorded week by week. One of the honorary medical men attached to the Society attended each week to superintend the weighing and to give advice to the mothers. It was most encouraging to see the great interest taken by mothers in the weekly weight of their babies. One of the lady members of the Society attended almost every day at the restaurant at the time when the mothers were present, and offered words of sympathy, advice, and encouragement.

The meals were varied. Some days the menu was roast beef, potatoes, and milk pudding; other days, fish, potatoes, and milk pudding, stewed meat, potatoes, and milk pudding, etc. There was always milk pudding.

After the first three or four weeks the average daily attendance was about 12. After the first three or four months the number attending on weighing day was, of course, much larger, and towards the end of 1907 the number of babies weighed each week averaged about 25. If a mother ceases to attend the



restaurant without obvious reason she is visited, and the cause of absence ascertained. If the mother has to go to work after a time she has the privilege of receiving a hot supper on these premises every Monday night instead of a dinner, and subject to the baby being brought to be weighed and inspected.

The total cost, including rent, wages of caretaker, coal, gas and food, from the date of opening to the end of 1907 was about £90.

The premises were suitably furnished, the whole of the furniture being given by the kindness of a sympathiser. Where the mothers attending the restaurant could afford to pay towards the cost of the meals, they have been charged one penny per meal. In this way about £4 had been received. Otherwise all the funds were raised by voluntary contributions, but the opportunity to make the experiment primarily was due to the kindness of James Wilcock, Esq., J.P., who practically guaranteed the expenses of the first nine or ten months by contributing the sum of £100.

The results of the above experiment have been most satisfactory and encouraging. The tabulated statement of the charts at the end of the Report show that in many cases the progress of the babies has been above the normal, and when it is remembered **they are all drawn from the poorer working classes**, this fact is itself a strong testimony as to the treatment having been on the right lines.

Apart from these local inquiries and measures in the prevention of infantile mortality above described, special inquiries are being advised by the Home Office Authorities. I have reproduced the correspondence on this matter, which is sufficiently explicit.

Home Office,

Whitehall,

10th May, 1907.

Sir,

I am directed by the Secretary of State to say that he has had under consideration the report of the Physical Deterioration Committee (Cd. 2175, 1904; see pages 47-50, and 88) in regard to the question of the further regulation of industrial employment of women before and after childbirth, and the resolutions adopted on this subject at the Conference on Infantile Mortality which was held in London last Summer.

As you are doubtless aware, the only statutory provision on the subject at present is that in section 61 of the Factory and Workshop Act, 1901, which makes it an offence for the occupier of a factory or workshop knowingly to allow a woman or girl to be employed therein within four weeks after she has given birth to a child.

The resolutions adopted at the recent Conference advocate (1) the extension of this period from one month to three; (2) the prohibition of the employment of women advanced in pregnancy unless medically certified to be fit for work.

The question of imposing further restrictions, however, presents very great difficulties both from the social and from the administrative points of view, and the Physical Deterioration Committee, after investigating the matter, expressed themselves as unable to advocate any uniform extension of the period.

Before any decision can be arrived at by the Government, the Secretary of State thinks it will be necessary to have fuller information on the subject than is available at present, as regards the effect of employment, both before and after childbirth, on the health of the mother and child, and as regards the social and economic effects which the prohibition of such employment for a considerable period would entail ; and he is anxious to arrange for inquiries to be made over a sufficiently wide area and for a sufficient period of time to enable if possible trustworthy conclusions to be reached.

Subsidiary questions such as the provision of crèches and other local arrangements for the care of infants during the absence of the mother at work would also be matters for discussion.

It appears to the Secretary of State that a simultaneous and systematic inquiry into the subject, on uniform lines, by the Medical Officers of Health of a number of representative industrial centres would yield the best results, and he would be glad to know if you would be willing to co-operate in the matter.

Part of the information sought is of a statistical kind, and relates to existing conditions. Some of the more important points of this nature are outlined in the following table, which, however, is to be regarded as a draft only, and subject to suggestions which the Secretary of State hopes to receive from the Medical Officers of Health who are prepared to assist in the inquiry.

CLASS.	NUMBER OF						
	Married Women.	Live Births.		Still Births and Miscarriages among		Deaths of Infants under 1 year.	
		Legitimate.	Illegitimate.	Married Women.	Other Women.	Legitimate.	Illegitimate.
1. Women employed industrially .....							
(a) In factories and workshops .....							
(i) In individual local industries in which women are employed on a large scale, viz. :—* .....							
(ii) In other local industries generally .....							
(b) As outworkers, in industrial work at home .....							
2. Women not employed industrially							

\* Especial importance attaches to those in which the work involves strain, or exposure to lead or other poisonous substances.

Any statistical information as to the comparative death-rates and sickness rates among the same classes of married women would be valuable.

The Secretary of State is aware that data of this kind are very imperfectly supplied in the records ordinarily furnished officially to Medical Officers of Health, and that some special research would be necessary for their completion. He believes, however, that they could be obtained, with the co-operation of

the Poor-law and other public authorities, local Registrars of Births and Deaths, hospital authorities, medical practitioners, employers, local trades unions and Friendly Societies, and charitable and philanthropic bodies; and that if so obtained for a number of large industrial centres, or for typical districts in those centres, they would afford most valuable information, attainable in no other way.

It might be possible, with the assent of the Registrar-General, to make arrangements with the local sub-Registrars of Births and Deaths to take note of the employment of mothers in registering births and deaths in infancy.

The Secretary of State will be glad to receive any suggestions as to the form and detail of the proposed statistical return, and as to any further statistics that might be useful. On receiving these suggestions, Mr. Gladstone would propose to cause a special form to be drafted for the purpose, in order that the returns from the Medical Officers of Health taking part in the inquiry may be on uniform lines and admit of statistical treatment as a whole.

The Secretary of State would propose that the inquiry should commence with 1907, but any information for 1906 or for earlier years which may be available will be of great value.

The investigations indicated above as to existing conditions will serve to show broadly how far there is need for extension of restrictive legislation, either generally or with regard to certain branches of industry. It is, however, necessary to consider further the probable social and economic effects of such legislation. in the event of

- (a) Extension of the present prohibition of employment in factories and workshops and laundries within one month after childbirth, to say three months; or
- (b) Prohibition of such employment during the later months of pregnancy.



Hence it is important to secure any available data on such points as the probability that legislation of that kind would result in any lowering of the birth-rate, in any general exclusion of married women from employment in factories and workshops, or in any increase of industrial homework; and what arrangements would have to be made for the maintenance of households in which the earnings of the mother are at present the sole or principal means of support.

These questions are less immediately within the province of Medical Officers of Health, who will, however, doubtless have many opportunities of making observations and obtaining data of great value.

It is necessary also to bear in mind the administrative difficulties in giving effect to such legislation; for example, in cases where a married woman, from whatever motive, presents herself for work and does not inform her employer of her pregnancy or confinement.

Mr. Gladstone proposes to cause the information and suggestions contained in the replies received before July 1st to be collated in a further circular, and to invite the Medical Officers of Health who are willing to take part in this important inquiry to attend a Conference at the Home Office in the Autumn, when the matter can be further discussed on the basis of that circular and the form of the statistical returns settled.

There are certain questions connected with the enforcement of the Homework provisions of the Factory Act, especially the points raised in the circular letter from the Home Office to the Council of the 4th October last, which the Department would be glad to discuss with the Medical Officers of Health, and the Conference would afford a convenient opportunity of doing this

I am, Sir,

Your obedient Servant,

M. D. CHALMERS.

The Medical Officer of Health  
for Blackburn.

I replied that I should be glad to assist in the suggested inquiry.

Home Office,

Whitehall,

7th October, 1907.

Sir,

I am directed by the Secretary of State to refer to his circular letter of the 10th May last, on the subject of the industrial employment of women before and after childbirth, and to say that he is glad to observe from the numerous replies which he has received that his proposal for a simultaneous and systematic inquiry into the subject, on uniform lines, by the Medical Officers of Health of a number of representative industrial centres, has been favourably received by the Medical Officers themselves and the local authorities of the districts.

A number of valuable suggestions have been made with regard to the inquiry, referred to in detail below, which Mr. Gladstone suggests should be considered at the Conference which it was intimated in the previous circular the Secretary of State proposed to convene at the Home Office in the autumn to finally determine the lines of the inquiry. He has now fixed Wednesday, the 6th of November next, as the date for the Conference, to open at 11 a.m., and he will be glad to hear that you can make it convenient to attend at the Home Office on that day. The Secretary of State hopes that it will be possible to complete the discussion on that day, but if necessary the Conference will be continued on the following day.

Since the issue of the Home Office circular of May last, an Act has been passed which Mr. Gladstone thinks will very materially facilitate the proposed inquiry. By the Notification of Births Act, 1907, which received the Royal Assent on August 28th and came into force at once, it is enacted that in any district in which the Act is adopted by the local authority, every birth shall be notified to the Medical Officer of Health within



36 hours by the father of the child, if actually residing in the house, or by any person in attendance upon the mother at the time of or within six hours after the birth. The Act applies to every child "*which has issued forth from its mother after the expiration of the 28th week of pregnancy, whether alive or dead.*"

The adoption of the Act is subject to the consent of the Local Government Board, but Mr. Gladstone is authorised by the Board to say that applications from districts proposing to adopt the Act with a view to the reduction of infant mortality will be favourably considered. As one month's notice of the intention to propose the resolution of adoption is required to be given and the resolution cannot come into operation for at least a month after it is passed, it is desirable that the question of the adoption of the Act by the local authority should be considered without delay, in order that it may take effect on the date which the Secretary of State suggests for the commencement of the inquiry, viz., 1st January, 1908.

The adoption of the Act will remove two of the chief difficulties which have been felt by Medical Officers of Health in connection with the proposed inquiry. Direct and immediate information will now reach the Medical Officer of Health of the births within his district, and the information will extend to still births as well as live births.

The Secretary of State will now refer to the chief suggestions which have been made by Medical Officers of Health in regard to the inquiry, and make some brief observations in regard to each of them. They can be discussed more fully at the Conference in November.

1. Several Medical Officers of Health have pointed out that the results under heading 2 "*women not employed industrially*" (in the tables outlined in the Home Office circular-letter) would not be really comparable with the results under heading 1 "*women employed industrially.*" as the former class would include women of

higher social position, and also those of more advanced age, among whom the proportion of first-births would be smaller; and suggestions have been made (a) that the inquiry should be confined to typical industrial districts containing women mainly of one social class; and (b) that the statistics compiled should be subdivided in age groups, or limited to women under a certain age. Suggestion (a) is in accordance with the intention of the Home Office when drafting the circular-letter. It is obviously necessary if the effect on women of employment in factories or workshops before or after childbirth is to be rightly gauged, and the influence of other factors such as poverty, is to be eliminated, that the comparison must be made between women otherwise of the same class and circumstances. The Secretary of State would here point out that the comparison will be between women not only of the same class, *but in the same town or district*. Considerable differences exist between different districts in regard to matters which materially affect the health of the mother and child, e.g., the general public health of the locality, the local provision made for assisting mothers in childbirth, the provision of crèches, for which it would be impossible to make proper allowance in comparing one district with another for the purposes of the present inquiry. For other purposes, however, such comparison may no doubt be valuable, and later in this circular reference will be made to the question of collecting information on these points.

Suggestion (b) is also important, and the Secretary of State will be glad to hear the views of the Medical Officers of Health with regard to it at the Conference. (It will increase the difficulty of collecting information as to the number of married women who are or are not employed industrially if distinction of age has also to be made.)

2. Some difficulty, it has been pointed out, may arise in obtaining statistics of the number of married women employed in the different local industries or as outworkers and of married women not employed industrially. The Secre-

tary of State has under consideration the question of asking occupiers of factories and workshops to state separately in the returns of persons employed, which will fall due to be made early in next year, the number of unmarried women, married women with husbands living, and widows. This information, however, even if obtained, will not be available (at the earliest) till late in the year; and besides will cover only part of the ground. Information as to outworkers can only be obtained locally by an examination of the outworkers' lists furnished by employers to the local authorities, checked and supplemented by special local inquiries; as regards women not employed industrially, some information is available in the 1901 Census Returns, but this will no doubt require to be revised and supplemented by special local inquiry or from sources of information already available to the Medical Officer of Health.

3. Questions have been raised as to the mode by which information of the occupation of the mother is to be obtained. The Secretary of State has been in communication with the Registrar-General as to the possibility of the local registrars obtaining the information at the time the birth is registered, and he hopes that a representative of the Registrar-General will be present at the Conference. He understands, however, that there may be some difficulties in the way of obtaining all the desired information, and in districts where births are required to be notified under the Notification of Births Act direct to the Medical Officer of Health it would probably be better (as indeed is suggested in the reply of some Medical Officers of Health) that the information should be obtained through the health visitors or other officer of the Medical Officer of Health at the time of notification.

4. The question of the treatment of illegitimate births has suggested difficulty to some Medical Officers of Health. In the table in the Home Office circular, cases of illegitimacy are distinguished, and this appears to be necessary for the accurate calculation of birth-rates among married

women. No corresponding rate can be calculated for illegitimate births, but the data are nevertheless important for the purposes of the present inquiry, since in such cases the woman is specially likely to be dependent on her work for the support of herself and her child, and a comparison of the figures obtained in these cases with the figures in cases of legitimacy should furnish valuable results.

5. Suggestions are made for obtaining information as to the facts in each case with regard to employment before and after childbirth, whether work was discontinued before birth, and if so, when; when work was resumed after birth, etc., etc. This information, if obtainable, will be of special value, and the Secretary of State will be glad to hear the views of the Conference on the point.

6. "Industrial employment," as to the meaning of which questions have been raised, was meant to cover only employment in manufacturing and allied processes, such as are carried on in factories and workshops. Charwomen, hawkers, for example, would not be considered to be "employed industrially," and would, therefore, be included under heading 2; there could be no reason, however, why these classes should not be constituted a separate heading if the Conference thought it desirable.

As regards the classification of industries for the purposes of the table, this might, perhaps, be the classification adopted in the returns of employment issued by the Factory Department. Copies of this classification could be supplied to the Medical Officers of Health.

7. Women residing in one district and working in another should be taken as belonging to the district in which they reside.

8. "Miscarriages." The difficulties in the way of obtaining accurate information as to the number of miscarriages in the first 28 weeks of pregnancy are felt to be so great



that it may be better to drop this item from the table, but it will be very valuable if, as regards industries where risk of lead poisoning and consequent liability to miscarriage exists, a special effort could be made by Medical Officers of Health to obtain information.

9. The special inquiries that will no doubt be necessary for the purposes indicated above could, it is suggested, conveniently be undertaken by health visitors in districts where such officers have been appointed ; and the special cards in use in those districts for the purpose of collecting information as to the individual cases could probably be made available for collecting the information required for the proposed inquiry. It might be useful to agree at the Conference on some general form of the entries to be added to the card for the purpose.

Lastly, it seems to be generally felt by Medical Officers of Health that the suggested inquiry will afford an opportunity of collecting additional information as to the various influences which affect the questions of infant mortality and birth-rate, e.g., husband's employment and wages, wages earned by the mother, arrangements made for care of infant, method of feeding infant, number of children, age of mother. These matters are partly outside the scope of the suggested inquiry, but they will to some extent bear on the questions suggested for inquiry in the second part of the Home Office circular, namely, the social and economic effects of further restrictions on the employment of women before and after childbirth, and in particular whether such restrictions would or would not have indirect effects prejudicial to infant life, either (a) by adding to the economic burden of child-bearing and so leading to a further fall in the birth-rate, and (b) by increasing the poverty of the household, and so—through worse feeding, etc.—leading to an increase in the infant death-rate. Mr. Gladstone will be glad to have this part of the inquiry discussed at the Conference.

As intimated in the previous circular, the Department would be glad at the conclusion of the Conference to discuss with the Medical Officers of Health the question of the enforcement of the Home Work Provisions of the Factory Act, inter alia, how the statistics of homeworkers could be improved, and the provisions for the prevention of homework in unwholesome, and infected premises more effectively utilised. Among the points which have been raised in regard to the homeworkers' lists may be mentioned the possibility of eliminating in the tabulation of the lists duplicate entries (the same homeworkers appearing in the lists of several employers), the separation of contractors from actual workers, and the discrepancy between the figures of addresses sent to other authorities and the figures of addresses received from other authorities as shown by the returns published by the Home Office.

I am, Sir,

Your obedient Servant,

M. D. CHALMERS.

To the Medical Officer of  
Health for Blackburn.

I attended the above-named Conference in London on November 6th, 1907, and assisted in the discussion.

Home Office,

Whitehall,

17th December, 1907.

Sir,

I have laid before the Secretary of State a report of the proceedings at the recent Conference with Medical Officers of Health, at the Home Office, on the subject of the industrial employment of women before and after childbirth, and I am desired by him to express his satisfaction that the Conference was so largely attended, and that a general agreement was arrived at with regard to the lines which the proposed inquiry should follow.

It may be convenient for subsequent reference briefly to record the chief results of the proceedings. The questions relating to infantile mortality were considered under the following heads :—I. The information to be obtained ; II. The area of the inquiry ; III. The period of the inquiry ; and IV. The method of collecting the information. A discussion followed on some of the economic and social aspects of the subject.

As regards the inquiry, the Conference arrived at the following conclusions.

### I.—INFORMATION TO BE OBTAINED.

(1) *Classification of groups of women.*—The classification suggested in the Home Office Circular of 10th May was accepted, with a modification, as follows :—(a) Women employed in factories and workshops ; (b) those employed in industrial work at home ; (c) other workers, e.g., char women and hawkers, and (d) those unoccupied, i.e., engaged only in domestic duties ; but it was agreed that the information collected should be such as to admit of the groups of women industrially employed being further subdivided according to trades and (where the particular process on which the woman was engaged involves special risk to health) according to the process. For this purpose the visitor should be directed to ascertain in each case the woman's precise occupation and the degree of severity of the work, and to note any conditions involving special danger or special fatigue, e.g., exposure to lead, pedal-work, or excessive standing. Subject to these suggestions, the particulars as to employment should be as simple as possible.

On the question of classifying the women according to age-groups, the Conference considered that such a division should not be regarded as essential, but that it was certainly desirable to ascertain the age of the mother, and even more desirable to obtain particulars as to her previous history.



(2) *Illegitimacies*.—It was agreed that notwithstanding certain difficulties in the way, the distinction between cases of legitimacy and illegitimacy should, if possible, be made.

(3) *Miscarriages*.—Information on this point would be desirable, if practicable, but it must be left to the Medical Officer of Health to decide what information (if any) should be collected in cases in his district.

(4) *Feeding of child*.—There was a general consensus that information should be obtained as to the feeding of the child during the first six months of life, and that a clear distinction should be drawn between entire and partial breast-feeding.

(5) *Age of infant at death*.—It was agreed that in each case the exact age should be ascertained, with a view to tabulation in age-groups.

(6) *Cause of death of infant*.—The inclusion of this information in the returns should be optional.

(7) *Nationality and race of mother*.—The inclusion of this information, though no doubt of importance, might also be left to the discretion of the Medical Officer of Health.

## II.—AREA OF THE INQUIRY.

The Conference fully concurred in the view expressed in the Home Office letter of the 7th October that it was essential that the inquiry in each case should be limited to homogeneous districts, and should not be extended so as to embrace areas which include appreciable variations in the social character of the population. The statistics collected by the Medical Officer of Health must relate to women of the same class and circumstances. This was a point of the greatest importance, as, in the event of this condition being overlooked, the statistics would be vitiated and lose almost all their value. Several suggestions were made as to the manner in which suitable areas might be

selected, as, e.g., that streets might be taken as the unit (on the ground that a given street in an industrial district usually contains houses of a uniform character, occupied by workers of the same class), or that only houses up to a certain rental should be included; but it was understood that in this matter every Medical Officer of Health taking part in the inquiry would require to exercise his discretion.

It was further recognised that while parallel observations from rural and agricultural districts would be of great general interest, they would hardly admit of comparison with the statistics collected in industrial districts.

In this connection the Secretary of State may point out that it is not necessary in each case that the area of inquiry should be very large—a moderate area containing a fair number of women industrially employed will furnish useful results—but, of course, the more numerous the births occurring in the area selected, the more certain will be the conclusions arrived at with regard to the effects of the industrial employment of women in that area.

### III.—PERIOD OF THE INQUIRY.

The Conference was asked to determine whether the inquiry should be made in respect of children born between 1st January and 31st December, 1907, i.e., should be retrospective, or whether it should be in respect of children born between 1st January and 31st December, 1908. The question was eventually put to the vote, when it was resolved that the inquiry should be in regard to children born in the year 1908. It follows that, as the inquiry is to cover the whole of the first year of life, it cannot be completed till the expiration of the first year of life for children born on 31st December, 1908, i.e., not till 31st December, 1909.

### IV.—METHOD OF COLLECTING INFORMATION.

It was agreed that the employment of trained women visitors, such as the Health Visitors who already make such inquiries in several towns, would be necessary.

At the end of the discussion on the inquiry, the Conference nominated, at the request of the Home Office, certain Medical Officers of Health to form a Committee to assist the Home Office in drawing up a Form for the use of Medical Officers of Health and their staff in recording in a convenient manner the information agreed or recommended to be obtained in respect of each case. I enclose herewith a copy of the Form which has been drafted in consultation with this Committee, and, in view of the great importance of conducting the inquiry on uniform lines, I am to express a strong hope that the Medical Officers of Health who are willing to take part in the inquiry will adopt this Form for their returns.

It need hardly be said that the adoption of this Form will not in any way preclude any Medical Officer of Health from providing for the collection of additional particulars by the Visitors. The intention is that each Medical Officer of Health should arrange—subject to the conclusions arrived at by the Conference—for the particulars specified in the Form to be collected on the spot in whatever manner (e.g., by cards or notebooks) he may think most convenient, but that for each case a Form should subsequently be completed, and that when the Medical Officer of Health sends in his report of the results of the inquiry in his district, all the Forms should be forwarded at the same time to the Home Office for the purposes of such further collation, if any, as may be desired. As the Forms will have to be preserved for two years and more, it will be advisable to file them in covers.

When all the particulars in respect of births in 1908 are complete, it is desired that you will work up into a report the particulars contained in the returns, together with any information you may have been able to collect from other sources (e.g., lying-in homes, hospitals, etc.). It may be possible for the Secretary of State to suggest later a form of tables (on the lines of that given in the Home Office circular of the 10th May last) in which the statistical results can be uniformly presented. As stated by me at the Conference, it is the intention of the Secretary of State at the completion of the inquiry to publish in a blue book to be presented to Parliament the reports on the subject which he receives from the Medical Officers of Health.

In conclusion the Secretary of State would remind you that the two main objects of the inquiry are :—

(1) To determine the effect of employment of women before and after childbirth on the health of mother and child, and particularly, by means of a comparison between women who have been at work in a factory or workshop and women who have been otherwise employed or engaged only in domestic duties, whether employment in a factory or workshop has any specially prejudicial effect, and,

(2) So far as the Medical Officer of Health may be able to collect material bearing on the question, to gauge the social and economic effects which further restrictions on the employment of women in factories and workshops before and after childbirth would entail and in particular whether such restrictions would or would not have indirect effects prejudicial to infant life, either (a) by adding to the economic burden of child-bearing and so leading to a further fall in the birth-rate, or (b) by increasing the poverty of the household, and so—through worse feeding, etc.—leading to an increase in the infant death-rate.

Mr. Gladstone will now be very glad to hear that you are prepared to conduct an inquiry (commencing on 1st January, 1908) on the lines indicated, in your district, and to be informed at your earliest convenience whether you desire a supply of the Forms to be sent to you, and if so, what number you expect to require.

He hopes that the present circular, taken together with the previous circulars, sufficiently deals with the various points which the inquiry involves, but he need hardly add that he will be very happy to afford any Medical Officer of Health any further explanation required, and to advise at any time with regard to any difficulties which may arise in the course of the inquiry.

I am, Sir,                   

Your obedient Servant,

HERBERT SAMUEL.

To the Medical Officer of  
Health for Blackburn.

## BIRTH INQUIRY FORM.

No. of Case ..... Date of first visit .....

Sanitary District ..... Date of last visit .....

**Mother.**— Name .....

Address .....

Age ..... Race and Nationality .....

*Living with Husband* ..... *Living Apart* .....

*Widowed* ..... *Unmarried* .....

General Health—*Good* ..... *Indifferent* ..... *Bad* .....

Character of Confinement—*Doctor* ..... *Midwife* .....

*Institution* .....

Previous History—No. of Miscarriages ..... Still Births .....

Children born alive ..... Now living ..... Died in 1st year  
of life ..... Description of work before present pregnancy.....

\*Other information .....

Work during Pregnancy—How long ceased before birth .....

Precise occupation ..... *Carried on at home* .....

*In factory or workshop* ..... *Elsewhere* ..... Weekly  
earnings ..... Nature of work ..... *Heavy* .....

*Light* ..... \*Special conditions .....

Work after Birth—Resumed ..... weeks after birth

Why resumed .....

Precise occupation ..... *Carried on at  
home* ..... *In factory or workshop* ..... *Elsewhere* .....

Weekly earnings ..... Nature of work .....

*Heavy* ..... *Light* ..... \*Special conditions .....

NOTE.—In cases where the woman has been engaged only in domestic duties at home, either before or after childbirth, "Nil" should be written across the part inapplicable.



**Child.**— Full Name .....  
 Date of birth .....  
*Male* ..... *Female* ..... *Legitimate* .....  
*Illegitimate* ..... *Firstborn* ..... *Premature* .....  
Full time ..... Condition at first visit ..... At last .....  
If death occurs, age at death ..... Cause of death .....  
Feeding during first six months of life—Breast entirely for  
 ..... weeks. Artificial food partly since .....  
 †Why ..... Artificial food entirely since  
 ..... †Why .....  
 Nursing—*By mother* ..... *By other person at home* .....  
*Put out*, where .....

\* See Instructions overleaf.

† Under these headings should be given the reasons for abandoning breast feeding, wholly or partly, e.g., medical advice, failure of milk, resumption of work outside home, &c.

**Father.**— Occupation ..... Weekly earnings .....  
 Race and nationality ..... Health—*Good* .....  
*Indifferent* ..... *Bad* ..... **Home**—Rent .....  
 No. of rooms ..... Condition .....  
 No. of family at home ..... Weekly income of family .....  
 No. of lodgers ..... \***Remarks**.....

#### \*INSTRUCTIONS AS TO COMPLETING THE FORM.

This Form has to be completed partly by striking out all the words printed in italics which are inapplicable to the case under inquiry, and partly by filling in the blank spaces which are left for the insertion of particulars. This arrangement has been adopted with a view to the particulars being given in all cases in as uniform terms as possible. The words underlined indicate the particulars which are regarded as essential if the objects of the inquiry are to be attained.



The Form specifies in each case the precise information wanted, except in the case of the three following headings:— (1) “Other information,” (2) “Special conditions,” (3) “Remarks.” It is for the Medical Officer of Health (or the Visitor acting under his instructions) to include under these headings such particulars as he may think desirable, but it may be useful to indicate some of the points, not provided for elsewhere in the Form, which might be dealt with under these headings.

(a) “Other information.”—Under this head mention any particulars obtained as to previous illnesses of the mother, character of previous confinements (by what complications, if any, attended), what employment engaged in previous to marriage, etc.

(b) “Special conditions.”—Under this head note any circumstances rendering the work particularly arduous or injurious to health, e.g., working with pedal sewing machines; carrying heavy weights. continual standing, working in a lead process, etc.

(c) “Remarks.”—Under this head record the general progress of the case according to observations made at intermediate visits, habits and diet of mother, habits of husband, etc.

I hope that it will be possible to carry out this investigation during the present year in certain parts of the town.

Any measures which can be adopted for the purpose of reducing infantile mortality should be undertaken willingly.

The records of Blackburn Infantile Mortality figures are sufficiently numerous to indicate whether or not there is an improvement in this respect. I have received an interesting circular-letter bearing upon this point from Dr. Davies, the Medical Officer of Health for Bristol, as follows:—

## INFANTILE MORTALITY.

Public Health Offices,

40, Prince Street, Bristol,

31st January, 1908.

To the Bristol Housing of the Working Classes Sub-Committee  
of the Health Committee.

Gentlemen,

I am entirely in sympathy with any work undertaken for the control of excessive infant mortality, and I hope that the appointment of Special Health Visitors will enable me shortly to undertake in Bristol some useful work to this end. But, in estimating the value of work of this kind, we must be careful in our use of statistical methods, lest too much be claimed and disappointment result.

I append a comparative Report for Bristol and Huddersfield, from which it is at once evident that the wholesale improvement in the Huddersfield infant mortality returns, claimed as due to the special measures taken there, are not proved by the figures adduced to be due either entirely or in any large degree to these measures; for a practically identical improvement has taken place during the same years in Bristol without any special methods to this end having been taken.

An improvement in Huddersfield, probably represented by the slight difference between their figures and those of Bristol, may be due to the special measures adopted there, and it is worth some labour to secure even small results in the matter of infant mortality. There is no advantage, however, in deceiving ourselves as to the extent of the improvement to be expected.

I am, Gentlemen,

Your obedient Servant,

D. S. DAVIES, M.D.,

Medical Officer of Health.

## HUDDERSFIELD.

## INFANT MORTALITY.

## RESULT OF YEAR'S WORK.

During 1907 2,189 Births occurred in the Borough. and 212 infants less than 12 months old died, giving an infant mortality figure of 97.

The records of the department extend back for 31 years, and how very successful the work has been will be perceived from a reference to a diagram, which shows that the present figure is the lowest on record; for the first time it has fallen below 100. The mean for the 10 preceding years, 1897 to 1906, inclusive, was 135. Thus there has been effected a reduction of 28 per cent. The mean for the three years 1905-6-7 during which the work has been in progress is 117, and for the 10 years preceding this, 1895 to 1904, inclusive, was 142.

	Births Registered.		Deaths under One year of age.		Infant Mortality Figure.
1907.	2,189	.....	212	.....	97
Reduction 28 per cent.					

Preceding 10 years—

1897-1906	.....	22,991	.....	3,104	.....	135
-----------	-------	--------	-------	-------	-------	-----

The 3 years during  
which special work  
against Infant Mor-  
tality has been in  
progress, 1905-6-7.

6,746	.....	792	.....	117
-------	-------	-----	-------	-----

Reduction 18 per cent.

Preceding 10 years—

1895-1904	.....	22,631	.....	3,215	.....	142
-----------	-------	--------	-------	-------	-------	-----

Huddersfield is an industrial centre with not less than 25 per cent. of the female population at child-bearing ages working in textile factories. It is, therefore, the more surprising to find the infant mortality figure reduced to a rate comparable to that of the healthiest counties and rural districts.

Estimated Population 1907 ..... 94,814.

## BRISTOL.

### INFANT MORTALITY.

During 1907 8,915 Births occurred in the Borough, and 900 infants less than 12 months old died, giving an infant mortality figure of 100.9.

The records of the department extend back for 31 years, and a diagram shows that the present figure is the lowest on record; for the first time it has fallen to 100. The mean for the 10 preceding years, 1897 to 1906, inclusive, was 135. Thus there has occurred a reduction of 26 per cent. The mean for the three years 1905-6-7 is 117, and for the 10 years preceding this, 1895 to 1904, inclusive, was 138.7.

	Births Registered.		Deaths under One year of age.		Infant Mortality Figure.
1907.	8,915	.....	900	.....	100.9

Reduction 26 per cent.

Preceding 10 years—

1897-1906 ..... 89,535 ..... 12,151 ..... 135

The 3 years, 1905-6-7. 27,936 ..... 3,278 ..... 117.3

Reduction 15 per cent.

Preceding 10 years—

1895-1904 ..... 83,673 ..... 11,616 ..... 138.7

Bristol is an industrial centre, and the following table shows the proportion of married or widowed females at ages from 20 to 45 (child-bearing ages) engaged in occupations (Census 1901, Appendix A, Table 31.)

	20—25	25—35	35—45
BRISTOL .....	14.8	12.3	16.7
HUDDERSFIELD ...	20.9	12.4	13.6

Estimated Population 1907 ..... 367,979.

In order that Blackburn may be compared with Bristol and Huddersfield, I have prepared a similar table for our own town, as follows :—

### BLACKBURN.

TABLE XXI.

	Births Registered.	Deaths under 1 year of age.	Infant Mortality Figure	
1907	3,348	508	151	Reduction 17 per cent.
Preceding 10 years, 1897 to 1906	34,130	6,272	183	.....
The three years, 1905-6-7	9,859	1,508	151	Reduction 21 per cent.
Preceding 10 years, 1895 to 1904	34,970	6,803	193	.....

It will thus be seen that during the three years 1905, 1906, and 1907 upon which special stress has been laid, the reduction per cent. in Blackburn is greater even than at Huddersfield or Bristol, although our infantile mortality is higher than in those two towns.

I therefore fully concur in the opinion that all statistical results must be considered with a full remembrance of all the prevailing circumstances, and also with comparisons, on a similar basis, of the infantile mortality rates in a number of towns.

It should also be remembered that in any future year there may be a much greater incidence and mortality from infantile diarrhoea in all the large towns of England than has been the case during the years 1905, 1906, and 1907.



TABLE XXII.

Showing Deaths, Death Rates, and Birth Rates in Wards for each Month.

JANUARY.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuber- culosis	All other Causes
St. Stephen's.....	24.2	14.5	..	..	..	..	..	..	4	1	7	
Trinity .....	29.5	28.3	..	..	1	..	..	1	6	2	15	
St. Michael's.....	28.8	21.3	..	..	..	..	1	..	6	1	9	
St. John's .....	24.9	23.4	..	..	1	..	..	1	5	2	7	
St. Silas' .....	13.7	16.0	..	..	..	..	..	..	5	2	7	
St. Paul's .....	30.0	16.2	..	..	1	..	..	..	3	2	8	
St. Peter's.....	32.4	26.2	..	..	..	..	..	1	4	2	10	
St. Mary's.....	18.9	18.9	..	..	..	..	..	..	3	2	6	
St. Matthew's .....	18.7	19.9	..	..	..	..	1	..	3	2	11	
St. Thomas' .....	26.9	20.8	..	1	..	..	..	..	6	2	15	
Park .....	35.1	18.8	..	..	..	..	..	1	1	2	11	
St. Luke's.....	26.7	23.3	..	..	1	..	..	..	4	3	14	
St. Mark's.....	21.2	26.2	..	1	..	..	..	1	5	1	13	
St. Andrew's .....	24.8	18.3	..	..	..	..	..	..	4	1	12	
Borough.....	25.4	21.1	..	2	4	..	2	2	3	59	25	145

FEBRUARY.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuberculosis	All other Causes
St. Stephen's.....	25.5	28.1	..	..	..	..	..	..	..	4	2	15
Trinity .....	27.6	32.6	..	..	2	1	..	1	..	8	1	13
St. Michael's.....	18.0	20.8	..	..	..	..	..	..	..	2	1	12
St. John's .....	29.2	19.4	..	..	2	..	..	1	..	..	1	8
St. Silas' .....	17.7	20.3	..	..	..	..	..	..	..	6	1	10
St. Paul's .....	30.7	26.9	..	..	..	..	1	..	..	9	1	12
St. Peter's.....	25.6	23.9	..	..	..	..	..	..	..	6	2	7
St. Mary's.....	17.0	20.9	..	..	1	..	1	..	..	4	..	5
St. Matthew's .....	28.5	19.4	..	..	..	..	..	..	..	4	3	8
St. Thomas' .....	25.9	15.3	..	1	..	..	..	1	..	2	2	10
Park ..	15.2	19.4	..	..	1	..	..	..	1	2	1	11
St. Luke's .....	29.5	19.2	..	..	2	..	..	..	1	2	1	7
St. Mark's.....	23.5	8.2	..	..	..	..	..	..	..	2	1	5
St. Andrew's .....	28.7	17.9	..	..	..	..	..	..	..	5	2	8
Borough.....	24.7	20.8	..	1	8	1	2	3	2	56	19	131

TABLE XXII. *continued.*

MARCH.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Wh'g C'gh	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuber- culosis	All other Causes
St. Stephen's.....	30·3	13·3	...	...	...	1	...	...	...	2	2	6
Trinity .....	26·1	20·4	...	...	...	...	...	...	...	8	1	9
St. Michael's.....	13·8	16·1	...	...	...	...	...	...	...	5	1	6
St. John's .....	23·4	14·6	...	1	...	...	...	...	...	2	1	6
St. Silas' .....	17·2	12·6	...	...	...	...	...	...	...	1	1	10
St. Paul's .....	21·9	18·5	...	...	1	...	...	...	...	4	1	10
St. Peter's .....	24·2	28·8	...	...	1	...	...	...	...	3	2	11
St. Mary's .....	22·3	29·2	...	...	...	...	...	...	...	6	3	8
St. Matthew's .....	32·8	23·4	...	...	...	...	...	...	...	5	1	15
St. Thomas' .....	24·3	16·5	...	1	...	...	...	2	...	3	3	10
Park .....	25·0	21·3	...	1	...	...	...	...	...	...	2	14
St. Luke's.....	37·3	26·7	...	...	3	...	...	...	...	3	3	11
St. Mark's.....	32·4	14·9	...	...	...	...	...	...	...	3	1	8
St. Andrew's.....	28·1	9·7	...	...	...	...	...	...	...	1	2	8
Borough.....	25·5	18·2	...	3	5	1	...	2	...	46	24	132

APRIL.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Wh'g C'gh	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuber- culosis	All other Causes
St. Stephen's.....	32·5	16·2	..	..	2	..	..	..	4	..	7	
Trinity .....	26·9	19·9	..	..	1	..	..	2	4	..	10	
St. Michael's.....	23·3	12·9	..	..	1	..	..	..	3	..	6	
St. John's .....	22·7	15·1	..	..	..	..	..	..	2	..	8	
St. Silas' .....	16·6	15·4	..	..	..	..	..	..	6	..	7	
St. Paul's .....	43·0	25·1	..	..	..	..	..	..	4	1	16	
St. Peter's .....	22·3	20·7	1	..	..	..	..	1	..	..	11	
St. Mary's.....	28·4	21·3	..	..	..	..	..	..	1	2	9	
St. Matthew's .....	25·4	23·0	..	..	..	..	1	..	8	..	10	
St. Thomas' .....	30·5	13·4	..	..	..	..	..	..	6	..	9	
Park .....	27·2	23·3	1	..	1	..	..	..	4	1	11	
St. Luke's.....	31·7	20·6	..	..	..	..	..	..	3	2	10	
St. Mark's.....	33·5	23·2	..	..	1	..	..	1	4	1	12	
St. Andrew's.....	31·2	18·9	..	..	1	..	..	1	7	1	7	
Borough.....	28·4	19·0	2	..	7	..	..	1	5	56	8	133

TABLE XXII.—*continued.*

MAY.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Wh'g C'gh	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuber- culosis	All other Causes
St. Stephen's.....	32·7	15·7	...	...	...	...	...	...	3	2	8	
Trinity .....	22·7	15·8	...	...	1	...	...	...	4	3	8	
St. Michael's .....	28·8	17·5	...	...	...	...	...	...	3	1	11	
St. John's ...	29·3	27·8	...	...	...	...	...	...	4	4	11	
St. Silas' .....	13·7	13·7	...	...	...	...	...	...	5	...	7	
St. Pauls .....	27·7	11·5	...	...	1	...	...	...	2	1	7	
St. Peter's .....	21·8	21·6	1	...	...	...	...	...	4	2	7	
St. Mary's .....	18·9	24·1	1	...	...	...	1	...	2	2	9	
St. Matthew's .....	28·1	24·6	...	...	...	...	1	2	9	2	8	
St. Thomas' .....	16·5	15·6	...	1	...	...	...	...	5	3	9	
Park .....	25·0	12·5	...	1	...	...	1	2	4	...	3	
St. Luke's .....	24·0	17·3	...	...	...	...	...	...	2	2	12	
St. Mark's .....	28·7	8·7	...	...	...	...	...	...	...	2	5	
St. Andrew's.....	30·2	28·1	...	1	...	...	1	...	9	2	13	
Borough.....	24·8	17·9	2	3	2	...	1	3	4	56	26	118

JUNE.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuberculosis	All other Causes
St. Stephen's.....	26·3	15·0	...	...	...	...	...	...	...	5	1	7
Trinity .....	22·2	8·3	...	...	1	...	...	...	1	2	1	3
St. Michael's .....	25·9	7·7	...	...	...	...	...	...	...	1	...	6
St. John's .....	21·9	13·6	...	...	...	...	...	...	1	1	2	5
St. Silas' .....	15·4	11·8	...	1	...	...	...	...	...	3	...	6
St. Paul's .....	31·0	19·1	3	...	...	...	...	...	...	2	...	11
St. Peter's .....	25·5	14·3	...	...	...	...	...	...	...	4	1	4
St. Mary's .....	33·8	26·3	...	...	1	...	...	...	...	3	2	8
St. Matthew's .....	27·8	16·9	2	1	...	...	...	...	...	3	2	8
St. Thomas' .....	17·0	10·7	1	...	...	...	...	...	1	1	3	8
Park .....	31·1	19·4	1	...	...	...	...	...	...	3	1	11
St. Luke's .....	34·4	11·0	1	...	...	...	...	...	...	2	1	4
St. Mark's .....	28·3	2·5	...	...	...	...	...	...	...	1	1	1
St. Andrew's.....	23·4	16·7	1	1	...	...	...	...	...	2	1	10
Borough.....	25·5	13·4	8	3	2	...	...	...	3	33	16	92

TABLE XXII.—*continued.*

JULY.	Birth Rate.	Death Rate.	DEATHS.								
			Measles	Scarlet Fever.	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuberculosis
St. Stephen's.....	33·9	16·9	...	...	1	...	...	...	1	2	10
Trinity .....	26·1	13·6	...	...	...	...	...	...	1	2	9
St. Michael's.....	28·8	18·8	...	1	...	1	...	...	...	...	13
St. John's.....	22·0	16·1	1	...	...	...	...	1	1	2	6
St. Silas' .....	17·2	4·5	...	...	...	...	...	...	1	...	3
St. Paul's .....	30·0	10·4	1	1	...	...	...	...	1	2	4
St. Peter's .....	24·7	15·4	...	1	1	...	...	...	2	2	4
St. Mary's .....	31·0	20·6	1	...	...	...	...	1	1	1	6
St. Matthew's .....	37·5	15·2	1	...	...	...	...	...	1	4	6
St. Thomas' .....	22·5	15·7	1	...	...	...	...	2	1	4	9
Park .....	20·3	11·2	1	...	...	...	...	...	2	1	5
St. Luke's .....	28·0	20·0	2	...	...	...	...	...	...	2	11
St. Mark's.....	23·7	12·4	2	...	...	...	...	...	...	2	6
St. Andrew's.....	24·8	14·0	3	...	...	...	...	...	...	...	10
Borough.....	26·4	14·4	12	3	2	1	...	3	6	19	102

AUGUST.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Wp'g Cgh	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases.	Tuber- culosis.	All other Causes.
St. Stephen's.....	25·4	10·9	...	...	...	...	...	...	1	2	1	5
Trinity .....	27·2	12·4	2	...	...	...	...	...	...	2	2	5
St. Michael's.....	20·0	8·7	...	...	...	...	...	...	...	3	...	4
St. John's .....	27·8	8·8	...	...	...	...	...	...	...	2	...	4
St. Silas' .....	10·3	10·3	1	...	1	...	...	...	...	1	...	6
St. Paul's .....	30·0	18·5	...	1	...	...	...	...	...	2	2	11
St. Peter's.....	26·2	23·1	...	...	...	1	...	...	...	2	4	8
St. Mary's .....	34·4	13·7	...	...	...	...	...	...	...	2	1	5
St. Matthew's .....	19·9	16·4	...	1	2	...	...	...	1	3	1	6
St. Thomas' .....	19·1	12·1	2	...	1	...	...	...	1	...	1	10
Park .....	28·8	11·2	...	...	...	...	...	...	1	1	1	6
St. Luke's .....	22·6	18·6	2	...	...	...	1	...	...	2	2	7
St. Mark's.....	19·9	19·9	5	...	...	...	...	...	...	...	1	10
St. Andrew's.....	18·3	5·4	...	...	...	...	...	...	...	1	...	4
Borough.....	23·1	13·3	12	2	4	1	1	...	4	23	16	91

TABLE XXII.—continued.

SEPTEMBER.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuber- culosis	All other Causes
St. Stephen's.. . . . .	21·2	8·7	...	...	...	...	...	...	1	2	...	4
Trinity .....	29·3	11·7	...	...	...	...	...	...	1	1	3	4
St. Michael's.....	16·8	12·9	...	...	...	...	...	...	...	3	1	6
St. John's .....	16·6	7·5	...	...	...	...	...	...	...	1	...	4
St. Silas' .....	15·4	7·1	...	...	...	...	...	...	...	...	...	6
St. Paul's .....	22·7	9·5	...	...	...	...	...	...	...	1	1	6
St. Peter's.....	23·9	38·2	1	...	...	...	...	...	3	2	4	14
St. Mary's.....	23·1	19·5	...	...	...	...	...	...	...	4	...	7
St. Matthew's .....	39·9	13·3	...	...	1	...	...	...	...	...	1	9
St. Thomas' .....	19·7	9·8	...	...	...	...	...	...	...	2	2	7
Park .....	23·3	10·3	...	...	...	...	...	...	1	...	1	6
St. Luke's .....	22·0	16·5	1	...	...	...	...	...	...	...	1	10
St. Mark's .....	29·6	14·1	1	...	1	...	1	...	...	1	2	5
St. Andrew's.....	20·1	7·8	...	...	...	...	...	...	...	...	...	7
Borough.....	23·1	12·7	3	...	2	...	1	1	6	17	16	95

OCTOBER.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuberculosis	All other Causes.
St. Stephen's.....	26·6	18·1	...	...	...	...	...	...	1	4	1	10
Trinity .....	26·9	17·0	...	...	...	...	1	...	2	2	1	9
St. Michael's.....	25·1	8·7	...	...	...	...	...	...	2	1	1	3
St. John's .....	17·6	16·1	...	...	...	...	...	...	2	2	2	7
St. Silas' .....	11·4	12·6	...	...	...	...	...	...	...	1	...	10
St. Paul's .....	24·3	11·5	...	...	...	...	...	...	...	1	...	9
St. Peter's .....	21·6	20·0	...	1	...	...	...	...	2	2	2	6
St. Mary's .....	18·9	27·5	2	...	...	...	...	...	3	2	1	8
St. Matthew's .....	22·2	19·9	...	...	...	...	...	...	3	7	1	6
St. Thomas' .....	18·2	14·7	...	...	...	...	1	...	...	2	1	13
Park .....	30·1	17·5	...	1	1	...	...	...	...	2	1	9
St. Luke's .....	31·6	18·6	...	...	...	...	...	...	3	2	1	8
St. Mark's .....	18·7	12·4	1	...	...	...	...	...	...	5	...	4
St. Andrew's.....	30·2	15·1	...	...	...	...	1	...	...	2	1	10
Borough.....	22·8	16·1	3	2	1	...	3	...	18	35	13	112



TABLE XXII. — *continued.*

NOVEMBER.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuber- culosis.	All other Causes
St. Stephen's .....	25.5	22.5	...	...	...	...	...	2	4	4	8	
Trinity .....	37.5	15.2	...	...	...	...	...	...	6	1	6	
St. Michael's.....	23.3	9.0	...	...	...	...	...	...	...	...	7	
St. John's .....	21.0	15.1	...	...	...	...	...	...	2	1	7	
St. Silas' .....	8.3	7.1	...	...	...	...	...	...	1	...	5	
St. Paul's .....	28.7	19.1	...	...	...	...	...	...	8	1	7	
St. Peter's .....	31.9	28.7	...	...	...	...	...	...	3	1	14	
St. Mary's .....	14.2	26.6	...	...	...	...	1	...	6	...	8	
St. Matthew's .....	31.4	13.3	...	...	...	...	1	...	...	1	9	
St. Thomas' .....	23.3	16.1	...	...	...	...	...	...	6	1	11	
Park .....	32.4	10.3	...	...	...	...	...	...	4	2	2	
St. Luke's .....	24.8	22.0	...	...	...	...	...	...	6	3	7	
St. Mark's .....	29.6	29.6	2	...	...	...	...	1	6	2	12	
St. Andrew's .....	18.9	13.4	...	...	...	...	...	...	3	2	7	
Borough.....	24.9	17.2	2	...	...	...	...	2	3	55	19	110

DECEMBER.	Birth Rate.	Death Rate.	DEATHS.									
			Measles	Scarlet Fever	Whooping Cough	Croup	Typhoid Fever	Diphtheria	Diarrhoea	Lung Diseases	Tuberculosis.	All other Causes
St. Stephen's .....	29.0	8.4	...	...	...	...	...	...	...	2	1	4
Trinity .....	20.4	7.9	...	...	...	...	...	...	...	3	2	2
St. Michael's .....	21.3	11.2	...	...	...	...	...	...	...	2	2	5
St. John's .....	29.3	17.6	...	...	...	...	...	...	...	4	1	7
St. Silas' .....	16.0	16.0	...	...	1	...	1	...	...	4	1	7
St. Paul's .....	24.3	19.6	...	...	...	...	...	...	...	6	...	11
St. Peter's .....	18.5	27.7	...	1	...	...	...	...	...	4	...	13
St. Mary's .....	25.8	17.2	1	...	...	...	...	...	...	3	3	3
St. Matthew's .....	34.0	18.7	...	1	...	...	...	...	...	4	3	8
St. Thomas' .....	17.3	19.9	...	...	...	...	1	...	...	9	6	7
St. Mark .....	26.3	13.7	...	...	1	...	...	...	...	...	1	9
St. Luke's .....	21.3	13.3	...	...	...	...	...	...	...	2	1	7
St. Mark's .....	26.2	19.9	...	...	1	...	...	...	2	1	2	10
St. Andrew's .....	23.7	11.8	...	...	...	...	...	...	...	3	...	8
Borough .....	23.6	15.8	1	2	3	...	2	...	2	47	23	101



## ZYMOTIC DISEASES.

The Zymotic Death-rate during 1907 was 1.4 per 1,000, showing a great diminution as compared with the three previous years, 1904, 1905 and 1906, when these rates were 2.47, 2.03, and 2.42 per 1,000.

The death-rates from the principal Epidemic Diseases during 1907 in England and Wales were as follows:—

England and Wales .....	1.26	per 1,000 living.
76 Great Towns .....	1.54	„
142 Smaller Towns .....	1.29	„
England and Wales (less the 218 towns) .....	0.91	„

TABLE XXIII.

	33 Large Towns.	Black- burn.
Seven Zymotic Diseases .....	1.52	1.43
Smallpox.....	0.00	0.00
Measles .....	0.41	0.33
Scarlet Fever .....	0.10	0.15
Whooping Cough .....	0.32	0.30
Typhoid Fever ..	0.07	0.09
Diarrhœa and Epidemic Enteritis .....	0.41	0.41
Diphtheria .....	0.18	0.12

Regarding the Zymotic Diseases which are compulsorily notifiable, it will be seen on reference to Table XXV. that a number of 880 notifications came to hand during 1907. This is less by 341 than the number received during 1906, and less by 1,105 than the number received during 1905.

Of these 880 notifications, 544, or 61.7 per cent., were cases of Scarlet Fever.

The next most frequently notified diseases were in order—Diphtheria, Erysipelas, Enteric Fever, and Puerperal Fever.

Regarding the age periods of these 880 notifications, 397 occurred between the ages of five and 15 years and 224 between the ages of one and five years.

The majority of the notifications above the age of 25 years were Erysipelas.

The greatest amount of notifiable infection occurred in St. Thomas's Ward, and the least amount in St. Peter's and St. Mark's Wards.

#### NOTIFICATION FEES.

The total cost in fees paid to medical men for notifying cases of infectious diseases during 1907 was £122 5s. 6d.

TABLE XXIV.

Shewing number of cases of Infectious Diseases notified from 1889 to 1907.

Disease.	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Smallpox .....	...	...	...	4	79	13	...	...	...	...	...	23	...	49	92	2	4	...	1
Scarlet Fever...	737	324	196	176	190	156	224	287	185	347	615	1476	1117	494	339	458	1578	849	544
Diphtheria.....	4	5	1	3	2	38	31	25	15	77	229	334	284	83	132	60	157	166	150
Enteric Fever	111	121	106	79	161	129	119	143	179	228	233	163	131	127	97	111	90	82	61
Typhus ... ..	...	...	...	...	1	...	...	...	1	...	1	..	...	...	...	...	...	...	...
Cholera .....	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...
Total .....	852	450	303	262	432	336	375	455	380	652	1078	1996	1532	753	660	631	1829	1097	756

TABLE XXV.

## Cases of Infectious Disease notified during the Year 1907.

NOTIFIABLE DISEASE.	Cases notified in whole District.						Total Cases notified in each Locality.										Number of Cases removed to Hospital from each Locality.										Total Cases removed to Hospital.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	At Ages—Years.						St. Stephen's	Trinity	St. Michael's	St. John's	St. Silas	St. Paul's	St. Peter's	St. Mary's	St. Matthew's	St. Thomas	Park	St. Luke's	St. Mark's	St. Andrew's	St. Stephen's	Trinity	St. Michael's	St. John's	St. Silas	St. Paul's		St. Peter's	St. Mary's	St. Matthew's	St. Thomas	Park	St. Luke's	St. Mark's	St. Andrew's																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Under 1	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwards																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
Small-pox .....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...</

## MEASLES.

864 cases of Measles were reported from the Schools during the year, compared with 713 cases during 1906, 1,003 during 1905, and 2,440 cases during 1904.

The reported cases and deaths occurred in the months in the following numbers:—

	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December
Reported Cases .....	4	2	3	24	151	193	318	6	67	64	29	3
Deaths ...	...	...	...	2	2	8	12	12	3	3	2	1

In 1896 there were 3 cases notified to each death.

„ 1897	„	13	„	„
„ 1898	„	9	„	„
„ 1899	„	17	„	„
„ 1900	„	24	„	„
„ 1901	„	15	„	„
„ 1902	„	15	„	„
„ 1903	„	18	„	„
„ 1904	„	40	„	„
„ 1905	„	24	„	„
„ 1906	„	11	„	„
„ 1907	„	19	„	„

## DEATHS IN AGE PERIODS.

0 to 1	1 to 5	5 to 10	10 to 15	Total
14	31	0	0	45

It will therefore be seen that Measles was rather more prevalent during 1907 than during 1906, but much less prevalent than during the years 1904 and 1905.

The majority of the cases occurred during May, June and July, and the worst of these three months was July. The very small number of cases (9), without deaths occurring during January, February and March, was very noticeable.

The death-rate from Measles during 1907 was 0.33 as compared with 0.47 during 1906.

The greatest number of deaths occurred between the ages of one and five years, and no deaths were certified above the age of five years from this cause.

The usual preventive measures, previously described in previous reports, were adopted throughout the year.

Inquiries were also made as to the number of Measles cases which were attended by medical men.

382 cases were visited by my Inspectors, so that this disease could be investigated.

It was found that 221 were attended by a medical man, or 57.8 per cent.

The remaining 161 had no medical attendant.

The following Schools were closed during the year 1907 on account of Measles :—

#### NAME OF SCHOOL.

Christ Church Infants .....	May	6th	...Until	June	3rd
Park Road Infants .....	,,	6th	...,,	,,	3rd
Princes Street Infants .....	,,	7th	...,,	,,	3rd
Parish Higher Grade Infants...	,,	14th	...,,	,,	3rd
St. Joseph's Infants .....	,,	15th	...,,	,,	3rd
St. Mary's R.C. Infants .....	,,	29th	...,,	,,	24th
Mill Hill C. Infants .....	June	24th	...,,	July	15th
Bank Top Infants .....	,,	28th	...,,	,,	22nd
St. John's Infants .....	July	1st	...,,	,,	22nd
Whalley Range Infants .....	,,	6th	...Until after Mid-	summer Holidays.	



St. Matthew's Infants .....	July 11th	...	Until after Mid-
St. Peter's C.E. Infants and			summer Holidays
Juniors .....	„ 18th	...	„
Holy Trinity Infants .....	„ 19th	...	„
St. James's C.E. Infants .....	„ 23rd	...	„
St. Anne's R.C. Infants.....	„ 23rd	...	„
All Saints' Infants .....	„ 23rd	...	„
Bank Top Infants .....	„ 24th	...	„
Cedar Street Infants .....	„ 25th	...	„
St. Michael's Infants .....	„ 25th	...	„
Maudsley Street Infants .....	„ 26th	...	„
Audley Range Infants .....	„ 30th	...	„
Cedar Street Infants .....	Sept. 4th	...	Until Sept. 23rd
St. Patrick's School .....	„ 16th	...	„ Oct. 14th
St. Silas's Infants .....	„ 20th	...	„ „ 14th
Cedar Street Infants .....	„ 26th	...	„ „ 28th
Wensley Fold Infants .....	Oct. 15th	...	„ Nov. 11th
Witton Infants .....	„ 23rd	...	„ „ 18th
Wensley Fold Infants .....	Nov. 11th	...	„ „ 25th
			(Extension)
Holy Trinity Infants .....	„ 13th	...	„ Dec. 9th

DEATHS AND DEATH RATES FROM MEASLES  
1871—1907.

TABLE XXVI.

Year	Total Deaths	Death Rate	Year	Total Deaths	Death Rate
1871	61	0·8	1889	188	1·6
1872	31	0·3	1890	15	0·1
1873	119	1·4	1891	173	1·4
1874	142	1·7	1892	8	0·06
1875	29	0·3	1893	140	1·1
1876	167	1·9	1894	13	0·01
1877	48	0·5	1895	324	2·5
1878	25	0·2	1896	36	0·2
1879	37	0·3	1897	143	1·0
1880	74	0·7	1898	50	0·38
1881	9	0·08	1899	40	0·29
1882	167	1·5	1900	76	0·55
1883	1	0·009	1901	94	0·72
1884	92	0·8	1902	77	0·58
1885	1	0·009	1903	53	0·40
1886	195	1·7	1904	60	0·45
1887	76	0·6	1905	42	0·31
1888	117	1·0	1906	63	0·47
			1907	45	0·33

## SCARLET FEVER.

The number of cases notified during the year was 544, compared with 849 during 1906, 1,578 cases during 1905, and 458 during 1904.

The following were the cases and deaths in age periods :—

Age period	0-1	1-5	5-10	10-15	15-20	20-25	25-35	35-45	45 & up.
Cases ...	6	186	225	74	29	11	7	5	1
Deaths ..	1	13	6	...			...	...	1

These figures show :—

- I. That during 1906 the incidence and mortality from Scarlet Fever below the age of one year were small.
- II. That this disease is most prevalent between the ages of one and five and five and ten years (411 cases out of 544 cases, or 75.5 per cent.).  
This is usually the case with Scarlet Fever.
- III. That also between the two last-named age periods the greatest number of deaths occurred (19 deaths out of 21 deaths from Scarlet Fever, or 90.4 per cent.)
- IV. That there is a diminished incidence and mortality after the age of ten years.

The following are the cases arranged in months and quarters for 1907, and compared with similar cases for 1906 :—

		Jan.	Feb.	March	April	May	June
1907	...	60	41	36	44	41	48
1906	.....	143	75	65	45	66	48
		July	Aug.	Sept.	Oct.	Nov.	Dec.
1907	.....	52	30	44	49	55	44
1906	.....	49	63	67	105	78	45

		First Quarter	Second Quarter.	Third Quarter.	Fourth Quarter.
1907	.....	137	133	126	148
1906	.....	283	159	179	228

The number of cases of Scarlet Fever occurred fairly evenly through the year.

The percentage of cases of this disease removed to the Hospital in the different months were as follows :—

Jan.	Feb.	March	April	May	June
66.6	80.4	61.1	61.2	63.4	77.0
July	Aug.	Sept.	Oct.	Nov.	Dec.
76.9	70.0	84.0	73.4	78.1	61.3

Also the number of cases in individual houses was as follows :—

In	1	house	there	were	4	cases.
„	17	houses	„	3	„	in each house.
„	52	„	„	2	„	„
„	382	„	„	was	1	case „

Three cases occurred in the Infirmary.

One householder was prosecuted and fined 20s. and costs for failing to notify a case of Scarlet Fever.

No milk supply had any effect in causing the disease to spread during the year.

The usual preventive measures were adopted in every case of Scarlet Fever which was notified during the year, and have been described fully in my annual report for 1905.

The following Table indicates the weekly and daily average number of notifications of Scarlet Fever throughout the year.

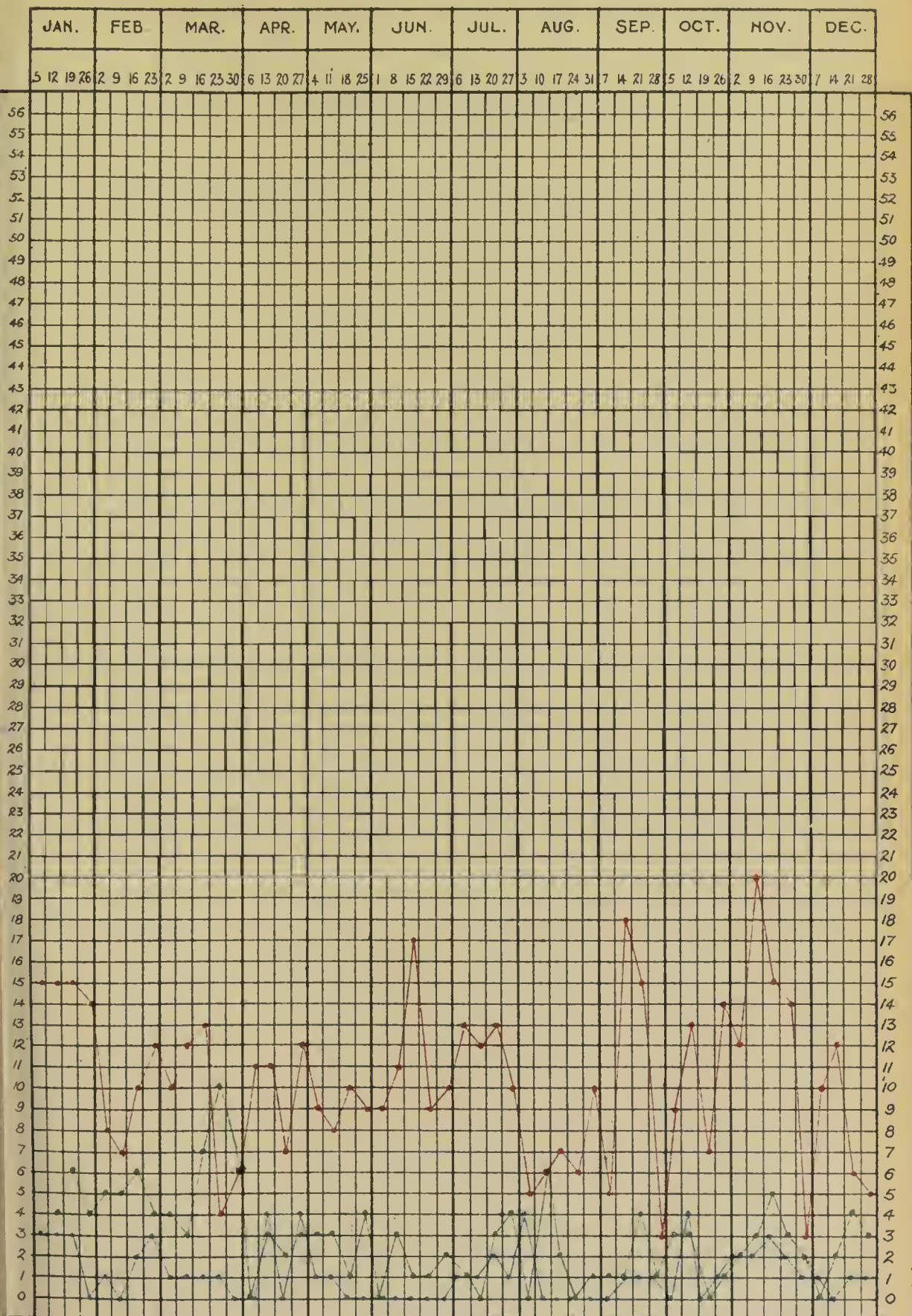
TABLE XXVII.  
Analysis of Cases of Scarlet Fever.

Week Ending	No. of Cases Notified Weekly	Total Cases Notified during Year	Average Cases Notified Weekly	Average Cases Notified Daily	Week Ending	No. of Cases Notified Weekly	Total Cases Notified during Year	Average Cases Notified Weekly	Average Cases Notified Daily
Jan. 5	15	15	15.0	3.0	July 6	13	287	10.6	1.5
" 12	15	30	15.0	2.5	" 13	12	299	10.6	1.5
" 19	15	45	15.0	2.3	" 20	13	312	10.7	1.5
" 26	14	59	14.7	2.2	" 27	10	322	10.7	1.5
Feb. 2	8	67	13.4	2.0	Aug. 3	5	327	10.5	1.5
" 9	7	74	12.3	1.8	" 10	6	333	10.4	1.5
" 16	10	84	12.0	1.8	" 17	7	340	10.3	1.4
" 23	12	96	12.0	1.7	" 24	6	340	10.1	1.4
Mar. 2	10	106	11.7	1.7	" 31	10	356	10.1	1.4
" 9	12	118	11.8	1.7	Sept. 7	5	361	10.0	1.4
" 16	13	131	11.9	1.7	" 14	18	379	10.2	1.4
" 23	4	135	11.2	1.6	" 21	15	394	10.3	1.4
" 30	6	141	10.8	1.6	" 28	3	397	10.1	1.4
April 6	11	152	10.8	1.6	Oct. 5	9	406	10.1	1.4
" 13	11	163	10.8	1.5	" 12	13	419	10.2	1.4
" 20	7	170	10.6	1.5	" 19	7	426	10.1	1.4
" 27	12	182	10.7	1.5	" 26	14	440	10.2	1.4
May 4	9	191	10.6	1.5	Nov. 2	12	452	10.2	1.4
" 11	8	199	10.4	1.5	" 9	20	472	10.4	1.5
" 18	10	209	10.4	1.5	" 16	15	487	10.5	1.5
" 25	9	218	10.3	1.5	" 23	14	501	10.0	1.5
June 1	9	227	10.3	1.4	" 30	3	504	10.5	1.5
" 8	11	238	10.3	1.4	Dec. 7	10	514	10.4	1.5
" 15	17	255	10.0	1.5	" 14	12	526	10.5	1.5
" 22	9	264	10.5	1.5	" 21	6	532	10.4	1.4
" 29	10	274	10.5	1.5	" 28	5	537	10.3	1.4



# Chart 2.

## Infectious Diseases.



RED S.F.

GREEN DIPH.

BLUE T.F.





## SCARLET FEVER

TABLE XXVIII.

Year.	Cases notified.	Deaths.	Mortality per 1,000 population.
1875	.....	57	·68
1876	.....	21	·24
1877	..	38	·42
1878	.....	345	3·59
1879	.....	175	1·77
1880	.....	74	·72
1881	103	23	·22
1882	331	47	·44
1883	275	41	·38
1884	211	45	·41
1885	181	23	·20
1886	422	26	·23
1887	1695	157	1·38
1888	829	175	1·51
1889	737	123	1·05
1890	324	32	·26
1891	196	13	·10
1892	176	13	·10
1893	190	4	·03
1894	156	10	·07
1895	224	8	·06
1896	287	9	·06
1897	185	7	·05
1898	347	16	·12
1899	615	14	·10
1900	1476	83	·65
1901	1117	58	·45
1902	494	31	·23
1903	339	13	·09
1904	458	13	·09
1905	1578	76	·57
1906	849	33	·24
1907	544	21	·15

## TYPHOID OR ENTERIC FEVER.

The number of cases notified during the year was 61, compared with 82 during 1906, 90 in 1905, and 110 in 1904. It is most satisfactory to record that this is the smallest amount of Typhoid Fever which has occurred in Blackburn for the last 27 years.

There were 13 deaths compared with 14 during 1906, 15 in 1905, and 21 in 1904.

The cases and deaths occurred in the following age periods :—

Age-Periods. Cases Notified. Deaths. Case Mortality, per cent.

0-1	0	0	0.0	„
1-2	0	0	0.0	„
2-3	2	0	0.0	„
3-4	0	0	0.0	„
4-5	1	0	0.0	„
5-6	3	0	0.0	„
6-7	2	1	50.0	„
7-8	1	0	0.0	„
8-9	3	0	0.0	„
9-10	1	0	0.0	„
10-15	9	1	11.1	„
15-20	5	0	0.0	„
20-25	4	2	50.0	„
25-35	14	3	21.6	„
35-45	8	5	62.5	„
45-55	8	1	12.5	„
<hr/>				
Total.....	61	13	21.3	

Out of the 61 cases notified during 1907, nine had eaten mussels, 10 had eaten cockles, and one had eaten oysters. There was no reason to believe that the consumption of shell-fish had aided in the spread of Typhoid Fever during the year.

The districts in which these 61 cases occurred will be seen by reference to the map at the end of the Report.

The drains at the 52 houses where these 61 cases occurred were tested. Defects were found at 33 houses, and steps were taken immediately to remedy the same.

The type of sanitary convenience at the infected houses was as follows :—

Water Closets.	Tub Closets.	Middens.
Fresh Water.	Slop Water.	
24	5	19
		4

#### ANALYSIS OF MILK SUPPLIES.

29 milk supplies with 1 case of Enteric in each supply.

6	„	„	2 cases	„	„	„
2	„	„	3	„	„	„

#### ANALYSIS OF WATER SUPPLIES.

Fishmoor Reservoir.	Guide Reservoir.	Audley Reservoir.
42	3	16

TABLE XXIX.

## ENTERIC FEVBR IN WARDS AND QUARTERS.

(NOTIFICATIONS).

Wards.	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Totals
St. Stephen's .....	0	0	0	3	3
Trinity .....	1	1	0	1	3
St. Michael's .....	2	1	1	0	4
St. John's .....	0	1	1	0	2
St. Silas' .....	0	0	0	1	1
St. Paul's .....	2	0	0	0	2
St. Peter's .....	2	0	0	2	4
St. Mary's .....	7	0	0	1	8
St. Matthew's .....	2	1	0	1	4
St. Thomas' .....	2	2	1	5	10
Park .....	2	1	0	0	3
St. Luke's .....	0	1	3	1	5
St. Mark's .....	0	1	2	1	4
St. Andrew's .....	0	1	4	3	8
Totals .....	20	10	12	19	61

The monthly notifications of this disease during 1907 were as follows:—

Jan.	Feb.	March	April	May	June
11	5	4	8	2	0
July	Aug.	Sept.	Oct.	Nov.	Dec.
9	0	3	6	9	4

—Total, 61.

Ninety specimens of blood were examined during the year for Typhoid Bacilli, with the following results :—

Positive	.....	25	,
Negative	.....	58	
Doubtful	.....	2	
Incomplete	.....	3	
Insufficient blood	.....	2	
<hr/>			
Total	.....	90	

The Cases notified in the four quarters for the years 1899 to 1907 were as follows :—

		First Quarter.	Second Quarter.	Third. Quarter	Fourth Quarter.
1899	..	84	26	42	81
1900	...	34	25	27	77
1901	...	35	24	29	43
1902	...	33	26	18	50
1903	...	39	23	16	19
1904	...	26	15	13	57
1905	...	20	18	10	42
1906	...	25	11	3	43
1907	...	20	10	12	19

Therefore the fourth quarter of the year has generally had the heaviest incidence of Enteric Fever.



## ENTERIC FEVER.

TABLE XXX.

Year	Cases Notified.	Deaths.	Mortality per 1,000 Population.
1880	...	43	'41
1881	289	68	'65
1882	210	50	'47
1883	442	84	'78
1884	268	67	'61
1885	130	28	'25
1886	105	34	'30
1887	153	41	'36
1888	146	39	'33
1889	111	20	'17
1890	121	37	'31
1891	106	24	'19
1892	79	32	'26
1893	161	27	'22
1894	129	32	'26
1895	119	28	'22
1896	143	33	'26
1897	179	35	'28
1898	228	30	'23
1899	233	40	'31
1900	163	30	'23
1901	131	17	'13
1902	127	23	'17
1903	97	15	'11
1904	111	21	'15
1905	90	15	'11
1906	82	14	'10
1907	61	13	'09

The following Table gives particulars of all the cases of Enteric Fever which were notified during the year 1907 :—

# ENTERIC FEVER.—Table XXXI.

Closet  
Accommodation

No.	Age	Days ill before notification after 1st case.	Cases of Typhoid occurring in same house after 1st case.	CONDITION OF							Other Remarks.
				W.C.	Tub	Asphalt	Slopwater	Yard.	Back road.	Drainage.	
1	9	6	..	..	..	..	..	..	..	..	This case occurred at the Blackburn and East Lancashire Infirmary.
2	33	12	..	1	1	..	Flagged and cobbled	Paved	..	Defective	
3	4	9	...	1	...	...	Flagged and cobbled	Paved	..	Defective	
4	28	12	...	1	...	...	Flagged	Paved	..	Defective	
5	23	18	...	1	..	..	Flagged	Paved	..	Defective	
6	12	15	...	1	...	...	Flagged	Passage flagged	..	Good	
7	53	10	...	1	...	...	Cobbled (bad)	Passage flagged	..	Defective	
8	2½	12	...	1	..	1	Flagged and cobbled	Paved	..	Defective	
9	18½	10	...	1	...	...	Flagged	Unpaved	..	Good	
10	31	15	...	1	...	...	Flagged and cobbled	Paved	..	Defective	

Closet  
Accommodation

No.	Age.	Days ill before notifi- cation after 1st case.	Cases of Typhoid occurring in same house	W. C.	Tub.	Asphalt.	Slopewater	CONDITION OF			Other Remarks.
								Yard.	Back road.	Drainage.	
11	33	16	...	1	...	...	...	Flagged and cobbled	Paved	Defective	This case occurred at the Blackburn Union Work- house.
12	36	16	...	1	...	...	...	Flagged	Paved	Defective	
13	84	7	...	1	...	...	...	Flagged and cobbled	Paved	Defective	
14	25	...	...	...	...	...	...	...	...	...	
15	11½	12	...	1	...	...	...	Flagged	Unpaved	Good	
16	19	13	...	...	1	...	...	Flagged and cobbled	Paved	Defective	
17	41	6	..	...	1	...	...	Cobbled (bad)	Paved	Good	
18	13	18	...	1	...	...	...	Flagged	Paved	Good	
19	26	9	..	1	...	...	...	Flagged	Passage flagged	Good	
20	8	8	another Case noticed April 11th	...	1	...	...	Flagged and cobbled	Paved	Defective	

Closet Accommodation											
No	Age	Days ill before notification after 1st case.	Cases of Typhoid occurring in same house	W.C.	Tub.	Ashpit.	Slopewater	CONDITION OF			Other Remarks.
								Yard.	Back road.	Drainage	
21	17	...	...	...	...	...	...	...	...	...	This case occurred at the Blackburn Union Work-house.
22	11	...	...	...	...	...	...	...	...	...	This case occurred at the Blackburn Union Work-house.
23	51	24	...	1	...	...	Flagged and cobbled	Paved	Defective	Defective	
24	29	26	...	1	...	...	Cobbled	Unpaved	Defective	Defective	
25	54	24	...	1	...	...	Flagged	Passage flagged	Good	Good	
26	14	14	...	...	1	...	Flagged and cobbled	Paved	Defective	Defective	
27	49	5	...	...	...	1	Flagged	Paved	Defective	Defective	
28	43	9	...	1	...	...	Flagged and cobbled	Passage flagged	Defective	Defective	
29	49	20	...	...	...	1	Flagged and cobbled	Paved	Good	Good	

Other Remarks.

This case occurred at the Blackburn Union Work-house.

This case occurred at the Blackburn Union Work-house.

Closet  
Accommodation

No.	Age	Days ill before notifi- cation	Cases of Typhoid occurring in same house after 1st case.	W.C.	Tub.	Asphalt.	Slopewater	CONDITION OF			Other Remarks
								Yard.	Back road.	Drainage	
30	17½	6	...	1	...	...	...	Flagged	Unpaved	Good	
31	7½	9	another case noticed on July 24th and two cases notified on July 31st	...	...	1	...	Flagged	Unpaved	Good	
32	11	8	...	...	...	...	1	Common yard flagged and cobbled	Passage cobbled	Good	
33	43	28	...	1	...	...	...	Flagged	Paved	Defective	
34	27	28	...	1	...	...	...	Flagged	Paved	Good	
35	6	5	...	...	...	...	1	Flagged	Paved	Good	
36	49	33	...	...	1	...	...	Flagged and cobbled	Unpaved	Defective	
37	22	10	...	...	1	...	...	Flagged and cobbled	Paved	Good	
38	36	18	...	...	1	...	...	None	None	Defective	

Closet  
Accommodation

No.	Age.	Days ill b'fore notifi- cation after 1st case.	Cases of typhoid occurring in same house after 1st case.	W.C.	Tub.	Asbtl.	Slopewater	CONDITION OF			Other Remarks
								Yard.	Back road.	Drainage.	
39	36	9		1	...	...	...	Flagged	Paved	Defective	
40	33	14	...	...	1	...	...	Common yard flagged	None	Defective	
41	49	14	...	...	...	...	1	Flagged	Paved	Defective	
42	40	16	...	1	...	...	...	Flagged	Paved	Defective	
43	20	30	...	1	...	...	...	Flagged and cobbled	Paved	Defective	
44	54	11	...	...	...	1	...	Flagged and cobbled	Unpaved	Defective	
45	34	19	...	1	...	...	...	Part flagged	Passage flagged	Good	
46	24	12	...	...	1	...	...	Flagged	Paved	Good	
47	26	15	another case noticed November 13th	1	...	...	...	Flagged	Paved	Defective	
48	5	3	...	...	1	...	...	Flagged	Unpaved	Defective	



Closet  
Accommodation

No	Age.	Days ill before notifi- cation after 1st case.	Cases of Typhoid occurring in same house	W.C.	Tub.	Asphalt.	Slopewater	CONDITION OF			Other Remarks.
								Yard.	Back road.	Drainage.	
49	2½	9	...	1	...	...	...	Asphalt	Unpaved	Good	
50	27	11	...	..	1	...	1	Part flagged	Paved	Defective	
51	10½	9	...	1	...	...	1	Flagged	Unpaved	Good	
52	8½	15	...	...	1	...	...	Common yard part flagged	Paved	Defective	
53	32	21	...	1	...	...	1	Flagged and gardened	Paved	Good	
54	15½	9	...	...	1	...	1	Part flagged	Paved	Defective	
55	42½	9	...	1	...	...	1	Flagged and cobble	Paved	Defective	
56	11½	8	...	...	1	...	1	Flagged and bricked	Unpaved	Defective	

## DIPHTHERIA AND MEMBRANOUS CROUP.

The number of cases notified during the year was 150, compared with 166 in 1906, 157 in 1905, and 60 in 1904.

There were 17 deaths out of the 150 cases, or a case mortality of 11.3 per cent., compared with a case mortality of 15.6 per cent. during the year 1906.

The highest incidence and mortality occurred between the ages of one and ten. Beyond the age of 20 years the incidence was small and the mortality nil.

80 cases occurred amongst school children.

The following are the Cases and Deaths in Age-periods :—

Age Periods in Years.	Notified Cases.		Deaths.	
0—1	5	5	2	2
1—2	5	34	1	7
2—3	3		0	
3—4	12		4	
4—5	14		2	
5—6	15	51	1	6
6—7	10		2	
7—8	9		1	
8—9	11		2	
9—10	6		0	
10—15	24	24	1	1
15—20	7	7	1	1
20—25	9	9	0	
25—35	12	12	0	
35 & upwards	8	8	0	0
	<hr/> 150		<hr/> 17	

The following are the cases arranged in months for the years 1906 and 1907 :—

	Jan.	Feb.	Mch.	Apr.	May	June	
1907	21	19	29	10	9	7	
1906	19	19	13	12	11	5	
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals.
1907	8	9	7	8	14	9	150
1906	20	14	12	15	7	19	166

And arranged in quarters :—

Year.	1st Quarter	2nd Quarter	3rd Quarter.	4th Quarter
1899	58	25	61	85
1900	92	76	54	112
1901	117	70	55	42
1902	19	17	20	27
1903	56	29	30	17
1904	22	12	7	19
1905	27	29	56	65
1906	51	28	46	41
1907	69	26	24	31
Totals	511	312	333	439

Thus the greatest number of cases occurred during the first quarter of the year 1907.

These 150 cases occurred at 133 houses. Three cases occurred at the Fever Hospital.

The drains at all these houses were tested. Defects were found at 64, and steps were taken immediately to remedy the same.

The following is an analysis of these houses according to the sanitary conditions which existed at the time of notification.

The sanitary conveniences were as follows :—

At 80 houses	there were	water closets.
„ 8	„	slop water closets.
„ 40	„	pail closets.
„ 5	„	privy middens.

Of the Back Yards at these houses :—

73	were flagged.
1	was partly flagged.
38	were flagged and cobbled.
5	were cobbled.
5	were flagged and bricked.
5	were flagged and gardened.
2	were asphalted.
2	were unflagged.
1	was paved.
1	was flagged, gardened, and asphalted.

Of the Back Roads and Passages :—

76	were paved.
8	were cobbled.
9	were flagged.
1	was partly flagged.
2	were flagged and cobbled.
1	was paved and cobbled.
24	were unpaved.
12	houses had no Back Road or Passage.

At 35 houses the Back Yards were out of repair, and notices were served on the owners to remedy the same.

The following analysis of the notified cases of Diphtheria in association with a bacteriological examination of throat swabs is interesting :—

Notified cases from which swabs had been taken, and which, on examination, proved to contain Diphtheria bacilli, 97. This number includes 11 swabs which were taken in order to ascertain if the throats were free from the disease.

Notified cases from which swabs had been taken, and on examination proved not to contain Diphtheria bacilli, 9.

Notified cases from which no swab had been taken, 55.

In 95 cases a swab was taken before the case was notified, of which 86 were positive and nine negative.

In 36 cases a second swab was taken before the house was disinfected.

72 cases were removed to Hospital.

In 23 cases no swab was taken before disinfection.

In 11 cases Diphtheria bacilli were found in second and subsequent swabs submitted.

During the year 1907, 348 swabs were taken.

Out of the 150 cases of Diphtheria notified during 1907 anti-toxin was injected in 72 cases.

This is a most valuable remedy, especially when used during the first three days of the illness, and is supplied free by the Corporation, as it is a useful public health preventive measure.

The amount used during the year was 165 bulbs of 4.000 units each, as follows :—

Fever Hospital .....	74
Medical Men (Police Stations) .....	33
Medical Men (Health Office) .....	58

TABLE XXXII.

Cases of Diphtheria Notified in Wards.

WARDS.	1900	1901	1902	1903	1904	1905	1906	1907
St. Stephen's..	21	15	4	13	3	9	10	7
Trinity .....	33	23	4	10	6	16	20	13
St. Michael's..	22	18	7	3	1	20	19	14
St. John's .....	16	20	2	9	5	16	11	23
St. Silas .....	11	25	7	32	14	11	9	20
St. Paul's .....	16	15	6	7	3	11	15	6
St. Peter's .....	12	9	9	1	4	6	1	3
St. Mary's .....	29	16	7	2	5	18	14	12
St. Matthew's.	48	47	7	3	4	13	12	10
St. Thomas' ...	23	18	11	16	...	8	6	12
Park .....	30	17	10	9	5	8	10	10
St. Luke's .....	20	20	2	2	7	5	6	5
St. Mark's .....	27	20	4	9	3	5	6	5
St. Andrew's	26	21	3	16	...	11	27	10
Totals...	334	284	83	132	60	157	166	150

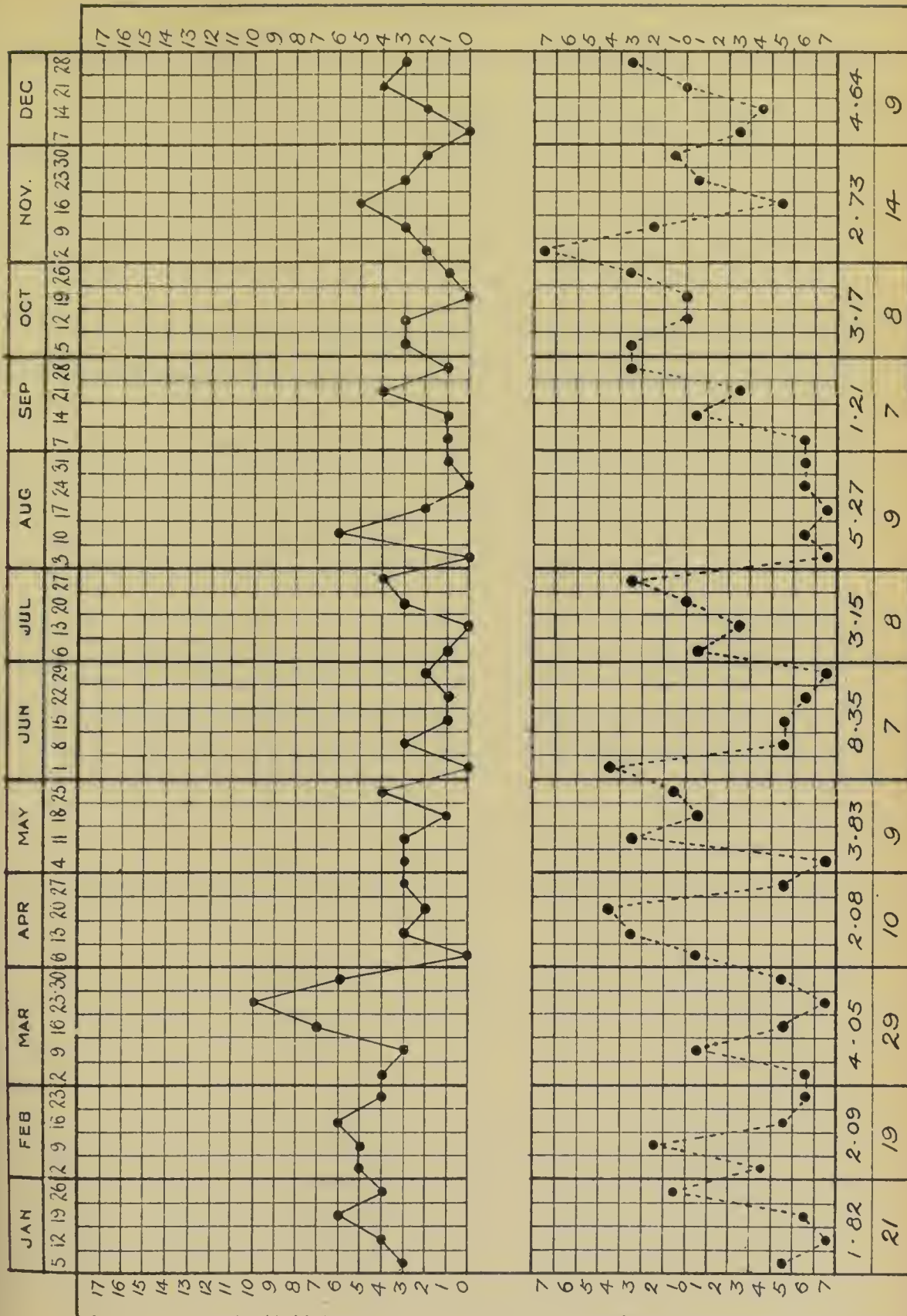


## DIPHTHERIA.

TABLE XXXIII.

Year.	Cases Notified.	Deaths.	Mortality per 1,000 Population.
1880	...	...	0 00
1881	.....	...	0 00
1882	...	2	0 01
1883	..	2	0'01
1884	...	1	0'009
1885	.....	1	0 009
1886	....	.	0 00
1887	.....	1	0'008
1888	.....	1	0 008
1889	4	4	0 03
1890	5	4	0 03
1891	1		0'00
1892	3	1	0'008
1893	3	2	0'01
1894	40	14	0 11
1895	31	7	0'05
1896	25	10	0 08
1897	15	5	0 04
1898	77	32	0 25
1899	229	74	0 58
1900	334	91	0 71
1901	284	62	0 48
1902	83	23	0'17
1903	132	26	0 19
1904	60	11	0 08
1905	157	33	0 24
1906	166	26	0'19
1907	150	17	0 12

# Chart 3.—Diphtheria.



NOTIFIED  
CASES  
OF  
DIPHTHERIA

E  
DIRECTION OF WIND

W  
RAINFALL IN  
EACH MONTH  
CASES OF DIPHTHERIA  
IN EACH MONTH.



## DIARRHŒA AND EPIDEMIC ENTERITIS.

The number of deaths from Diarrhœa and Epidemic Enteritis was 56—an exceedingly low number.

The deaths from this cause during 1905 and 1906 were 93 and 171 respectively.

Therefore the year 1907 presents a more favourable record than previous years.

When the reading of the 4ft. thermometer exceeds 56 degrees Fahrenheit, a condition arises which is probably associated with an increase in the number of Diarrhœa deaths. The condition is also rendered still more favourable for the spread of this disease when flies and dust abound, and when food putrefies rapidly.

As important measures in preventing the occurrence of this disease, I would urge you to complete the abolition of the old-fashioned privy middens, to continue the flagging of back yards, which diminishes soil pollution, and to demolish erections in yards when such are a nuisance.

In this connection also the adoption of educational measures in “ infant feeding ” and “ essentials of domestic hygiene ” is absolutely necessary.

A reference to Table VII. will show that most of the deaths from Diarrhœa and Epidemic Enteritis occurred below the age of one year.

I have again made inquiries at houses where deaths from Diarrhœa occurred, according to age, number of days ill before death, occupation of mother, feeding of child, means of storage of milk and food, sanitary accommodation, condition of the yard, condition of the back passage, and structures in the yard.

The following is a summary of the results of these visits :—

As to the number of days the children were ill before death occurred, it was found that :—

3	were ill from birth.
5	„ „ 2 days before death.
4	„ „ 3 „ „ „
2	„ „ 4 „ „ „
2	„ „ 5 „ „ „
1	„ „ 6 „ „ „
14	„ „ 7 „ „ „
3	„ „ 10 „ „ „
4	„ „ 14 „ „ „
3	„ „ 21 „ „ „
1	was „ 60 „ „ „
1	„ „ 6 weeks „ „
1	„ „ 28 „ „ „
1	„ „ 1 month „ „
11	not ascertained.

As to the occupation of mothers, the following was found :—

19	House duties.
13	Weavers.
5	Winders.
2	Ring Spinners.
2	Cardroom hands.
1	Rover.
14	Not ascertained.

As to the method of feeding, it was found that :—

16	were fed with boat-shaped bottle.
4	„ „ tube-shaped bottle.
2	„ „ tube bottle.
4	„ on the breast.
6	„ with spoon.
3	„ „ breast and boat-shaped bottle.
2	„ „ breast and spoon.
4	„ „ boat-shaped bottle and spoon.
1	„ „ tube-shaped bottle and spoon.
14	not ascertained.

The method of keeping the milk was very unsatisfactory in many cases. The milk vessel was rarely covered, and it was also often so placed that it could be contaminated in many ways.

The sanitary conveniences were as follows :—

At	36	houses	there	were	fresh-water	closets.
„	13	„	„	„	pail	closets.
„	3	„	„	„	slop-water	closets.
„	3	„	„	„	privies.	
„	1	house	there	was	a	trough closet.

Of the Back Yards at these houses :—

31	were	flagged.
21	„	flagged and cobbled.
1	was	paved.
1	„	part flagged and cobbled.
1	„	flagged and bricked.
1	„	part cobbled.
In one yard there was a structure.		

Of the Back Roads and Passages :—

31	were	paved.
7	„	cobbled.
5	„	flagged.
4	„	unpaved.
1	was	flagged and paved.
8	houses	had no back road or passage.

The following are particulars of the deaths from Diarrhœa, arranged in tabular form :—



TABLE XXXIV.

No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
1	58 years	7 days	...	...	...	...	...	Hopper	Flagged	Paved	No
2	8 months	28 weeks	House duties	...	Tube-shaped bottle	...	In living kitchen	Pedestal	Flagged and cobbled	Paved	No
3	19 months	7 days	Weaver	3 months after birth	Boat-shape	No	Sanitary cool place	Hopper	Flagged and cobbled	Unpaved	No
4	Removed	cannot say	where	...	...	...	...	Hopper	Flagged	Paved	No
5	5 months	From birth	Winder	5 weeks after birth	Boat-shape	No	Living kitchen	Hopper	Flagged	Paved	No
6	2 months	7 days	Winder	5 weeks after birth	Breast and boat shape	5 weeks	Living kitchen	Hopper	Flagged	None	No
7	19 days	10 days	House duties	...	Boat shape	No	In living kitchen	Hopper	Flagged	Cobbled	No
8	8 months	3 days	House duties	...	Long tube bottle	No	In back kitchen	Pail	Flagged	Cobbled	No
9	1 month	10 days	House duties	...	Breast	All the time	...	Pedestal	Flagged and cobbled	Paved	No
10	4 months	2 days	Spinner	3 months after birth	Breast	All the time	...	Tippler	Paved	Flagged and paved	No
11	15 months	Ailing from birth	Weaver	4 months after birth	Breast and patent foods	All the time	...	Hopper	Flagged and cobbled	Cobbled	No

TABLE XXXIV.—continued.

No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
12	1 month	3 days	House duties	No	Boat shape bottle	2 weeks	In back kitchen	Pedestal	Flagged	None	No
13	8 months	7 days	Winder	4 months after birth	Boat shape bottle	No	In kitchen milk boiled	Pail	Cobbled and unpaved	Flagged	No
14	4 months	7 days	Winder	15 weeks after birth	Boat shape bottle	2 months	In living kitchen	Pedestal	Flagged and cobbled	Cobbled	No
15	16 months	2 days	Weaver	3 months after birth	Long-tube bottle	No	In living kitchen	Pail	Flagged and cobbled	Paved	No
16	14 days	7 days	Winder	No	Fed by hand	No	In the yard covered over	Pedestal	Flagged and cobbled	Paved	No
17	59 years	7 days	...	...	...	...	...	Pail	Flagged and cobbled	None	No
18	Removed	out of the town	...	...	...	...	...	Pail	Flagged	None	No
19	5 years	6 weeks	...	...	...	...	...	Privy	Flagged	Flagged	No
20	3 months	14 days	Cardroom hand	No	Tube-shaped bottle	No	Clean vessels	Short hopper water closet	Common yard cobbled and part flagged	None	No
21	6 months	Removed	...	...	...	...	...	Wash-down pedestal water closet	Flagged	Paved	No

TABLE XXXIV.—continued.

No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
22	12 months	21 days	House duties	...	Boat-shaped bottle	No	Stored in cool place	Pail	Flagged	Paved	No
23	2 months	14 days	House duties	...	Boat-shaped bottle	No	Stored in clean vessels in a cool place	Privy	Flagged and cobbled	Paved (uneven)	No
24	12 months	111 from birth defective	House duties	...	Boat-shaped bottle and spoon fed	No	Cool place in clean vessels	Pail	Flagged	Paved	No
25	4 months	7 days	Weaver	2 months after birth	Boat-shaped bottle and spoon fed	2 months	Cool place in clean vessels	Privy	Flagged and cobbled	Paved	No
26	6 months	7 days	Weaver	3 months after birth	Breast and boat-shaped bottle	Breast 3 months afterwards Breast and bottle	Clean vessels	Pail	Flagged (small)	Flagged	No
27	2 months	7 days	House duties	...	Boat-shaped bottle and spoon fed	3 weeks	Clean vessels	Short hopper water closed	Flagged	None	No
28	4 months	21 days	House duties	...	Tube-shaped bottle and fed with spoon	No	Clean vessels	Short hopper water closed	Flagged and cobbled	None	No

TABLE XXXIV.—continued.

No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
29	6 months	60 days Not well from birth	House duties	...	Breast assisted by spoon last few days	Breast fed from birth	..	Short hopper water closet	Common yd. flagged	None	No
30	2 months	7 days	House duties	...	Breast	Breast fed up to day previous to death	...	Wash-down pedestal water closet	Flagged (out of repair)	Paved	No
31	11 days	4 days	Cardroom hand	1 month after birth	Boat-shaped bottle	No	Clean vessels	Wash-down pedestal water closet	Flagged	Cobbled (uneven)	No
32	6 months	5 days	Weaver	2 months after birth	Boat-shaped bottle	No	Clean vessels	Short hopper water closet	Flagged and cobbled (out of repair)	Cobbled (fair)	No
33	53 years	...	...	...	...	...	...	Short hopper water closet	Flagged and cobbled	Cobbled (fair)	No
34	15 months	14 days	Weaver	6 months after birth	Breast and boat-shaped bottle	Breast fed for 6 months afterwards Bottle day time; breast night	Clean vessels	Pail	Flagged and bricked (fair)	Paved	No

TABLE XXXIV.—continued.

No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
35	56 years	...	...	...	...	...	...	Wash-down pedestal water closet	Flagged and cobbled	Paved	No
36	2 months	...	...	...	...	...	...	W.C. ped.	Flagged	Paved	No
37	14 days	1 days	House duties and assisting in shop	No	Bottle	Not at any time	Boiled and kept in jug on pantry shelf	Ped. W.C.	Flagged	Paved	No
38	3 months	...	...	...	...	...	...	W.C. ped.	Flagged	Paved	No
39	76 years	...	...	...	...	...	...	W.C. ped.	Flagged	Paved	No
40	1 month	7 days	Weaver	No	Spoon fed	Tube bottle 7 days before death	In back kitchen	W.C. ped.	Flagged	Paved	No
41	1 month	3 days	Rover	1 weeks	Spoon fed 3 days before death	Breast	In kitchen on shelf	W.C. Macfarlane	Cobbled and flagged	Paved	No
42	5 months	2 days	House duties	No	Breast	...	In back kitchen	Pail closet	Flagged and cobbled	Paved	No

TABLE XXXIV.—continued.

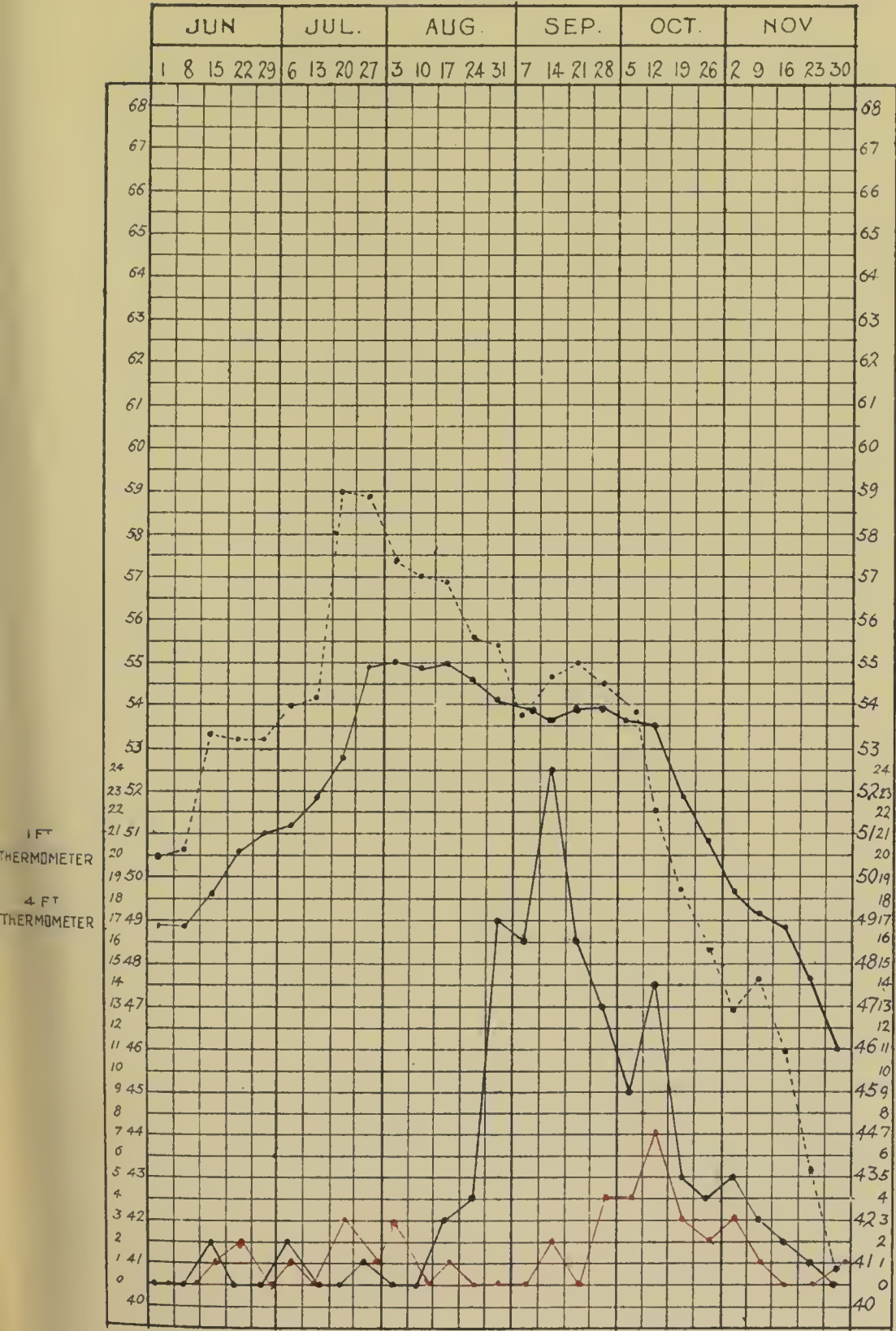
No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
43	7 months	...	...	...	...	...	...	Tub closet	Flagged and cobbled	Passage flagged	
44	5 months	14 days	House duties	No	Spoon fed 14 days before death	Long-tube and Boat-bottle	In back kitchen	W.C. Duckett	Flagged	Paved	No
45	4 months	5 days	House duties	No	Spoon fed 5 days before death	Boat-bottle	In back kitchen	W.C. ped.	Flagged	Unpaved	No
46	70 years	...	...	...	...	...	...	W.C. ped.	Flagged	Paved	No
47	16 days	7 days	Weaver	8 weeks	Boat bottle	Not at any time	In jug in front living place	Pail closet	Flagged and cobbled	Unpaved (bad)	No
48	5 months	2 days	Weaver	6 weeks	Boat bottle	6 weeks	Boiled and kept on scullery shelf	Ped. W.C.	Flagged	Paved	Yes
49	5 months	10 days	Weaver	3 weeks	Long-tube bottle	10 days	Boiled and kept on top of wash-boiler	Trough closet	Common yard cobbled and flagged	Flagged passage	No
50	8 months	2 days	House duties	No	Boat bottle	Not at any time	Boiled and kept in cupboard	Ped. W.C.	Flagged	Unpaved	No



TABLE XXXIV.—continued.

No.	Age.	Days ill before death.	Work of mother.	If returned to work since birth of child.	Feeding of child at death.	Breast fed how long from birth.	Means of storage of milk and food.	Sanitary accommodation.	Condition of yard.	Condition of back passage.	Structures in yard.
51	21 months	7 days	Housekeeper	No	Bread and milk 'Tea occasionally	Not at any time	Kept on kitchen shelf	Ped. W.C.	Flagged	Paved	No
52	7 weeks	6 days	Ring spinner	5 weeks	Boat bottle	5 weeks	On kitchen shelf	Ped. W.C.	Flagged	Paved passage	No
53	6 months	21 days	Weaver	8 weeks	Boat bottle and spoon	3 weeks	On kitchen table	Short hopper	Flagged and cobbled	Paved	No
54	15 months	2 days	Housekeeper	1 month	Boat-shaped bottle	10 weeks	On kitchen table and cupboard	Slopwater	Flagged	Paved	No
55	15 months	3 days	Weaver	6 weeks	Long-tube bottle	9 months	'Upboard and kitchen table	Pail	Flagged and cobbled	Paved	No
56	Removed	out of town		...				Ped. W.C.	Flagged	Paved	No

Chart 4.—Diarrhoea.





## SMALLPOX.

Only one case of Smallpox occurred during the year. The last case before this in Blackburn occurred in June, 1905. The circumstances were as follows :—On April 23rd, a boy R. C., aged 14 years, was admitted to the Fever Hospital with Diphtheria. On April 29th the rash of Smallpox appeared on his face, hands, and feet, and a mild discrete form of the disease developed. I had him removed to Finnington on April 30th, as he was too ill to be removed on April 29th. All his belongings and the ward in which I had him isolated at the Fever Hospital were disinfected thoroughly, and I vaccinated, with the consent of the parents, the susceptible children in the Diphtheria Block.

I was unable to trace the source of his infection, which must have been received on April 15th, i.e., eight days before he went to the Fever Hospital with Diphtheria. I could only suspect that as he was a Parcel Boy on the Trams running between Blackburn and Lower Darwen, there might be some connection between his illness and the case of Smallpox which was at that time isolated in the Darwen Hospital.

The boy made a good recovery at Finnington. The above preventive measures were successful, and no further cases occurred.

I regret that it is again my duty to place on record that the proportion of the population of Blackburn which will be susceptible when another outbreak of the disease occurs is increasing.

For example, 120 exemptions from vaccination were obtained in the year 1904, 190 in 1905, 305 in 1906, and 407 in 1907. Also, re-vaccination does not appear to be carried out in Blackburn to any great extent, except when there is an epidemic of smallpox.

The following Vaccination Act came into force on January 1st, 1908 :—

## VACCINATION ACT

(7 Edw. 7 ; Chap. 31).

The object of this Act is to effect an alteration in the legal method of obtaining exemption from penalties for neglecting to have a child vaccinated, but without otherwise interfering with the provisions of the Vaccination Acts, 1867 to 1898.

Sec. 2 of the Vaccination Act, 1898 (61 and 62, Vict. C. 49), provides that a parent or other person having the custody of a child shall not be liable to any penalty under Sec. 29 or Sec. 31 of the Vaccination Act, 1867 (30 and 31 Vict. C. 84), if, within four months from the birth of the child, he satisfies two justices, or a stipendiary or metropolitan police magistrate, in petty sessions, that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers to the Vaccination Officer for the district a certificate by such justices or magistrate of the conscientious objection

The new Act, which comes into operation on the 1st day of January, 1908, repeals as from that date Sec. 2 of the Act of 1898, but not so as to effect the operation of any certificate obtained before the commencement of the new Act, and substitutes the following provisions for that enactment.

(1) No parent or other person shall be liable to any penalty under Sec. 29 or Sec. 31 of the Vaccination Act, 1867, if within four months from the birth of the child he makes a statutory declaration that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers, or sends by post, the declaration to the Vaccination Officer of the district.

(2) A statutory declaration made for the purposes of this section shall be exempt from stamp duty.

(3) A statutory declaration for the purposes of this section shall be made in the form set out in the schedule to this Act, or in a form to the like effect.

The statutory declaration above referred to may be made before a Justice of the Peace, a Commissioner for Oaths, or other officer authorised by the law to administer an oath.

The form prescribed by the schedule is as follows:—

“ I, A. B., of                      , in the parish of                      ,  
in the county of                      , being the parent (or person  
having the custody) of a child named C. D., who was born  
on the                      day of                      , 19                      , do hereby solemnly  
and sincerely declare that I conscientiously believe that  
vaccination would be prejudicial to the health of the child,  
and I make this solemn declaration conscientiously believing  
the same to be true, and by virtue of the provisions of the  
Statutory Declarations Act, 1835.

“ Dated this                      day of                      , 19                      ,

“ (Signed) A. B.

“ Declared before me, at                      on the                      day  
of                      ,

“ E. F.,

“ a Commissioner for Oaths (or Justice  
of the Peace, or other officer authorised  
to receive a statutory declaration).”

By the Expiring Laws Continuance Act, 1907 (7 Edw.,  
Ch. 34) the Vaccination Act, 1898, as amended by the new Act,  
is continued in force until the 31st December, 1908.



## SMALLPOX.

TABLE XXXV.

Year.	Cases Notified.	Deaths.	Mortality per 1,000 Population.
1880	0	0	·00
1881	28	5	·04
1882	4	0	·00
1883	4	0	·00
1884	0	0	·00
1885	4	0	·00
1886	28	2	·01
1887	42	4	·03
1888	98	10	·08
1889	0	0	·00
1890	0	0	·00
1891	0	0	·00
1892	4	2	·01
1893	79	8	·06
1894	13	0	·00
1895	0	0	·00
1896	0	0	·00
1897	0	0	·00
1898	0	0	·00
1899	0	0	·00
1900	13	2	·01
1901	0	0	·00
1902	49	2	·01
1903	92	3	·02
1904	2	0	·00
1905	4	0	·00
1906	0	0	·00
1907	1	0	·00

## VACCINATION — For 1890—1907.

TABLE XXXVI.

Year	Births.	Successfully Vaccinated	Died Un- vaccinated	Insus- ceptible	Postponed	Exempted	Removed out of District and traced.	Removed and not traced.
1890	4015	3220	404	6	91	...	...	187
1891	4085	2852	522	7	131	...	...	412
1892	3883	2869	492	13	50	...	...	297
1893	3822	2674	560	23	94	...	...	471
1894	3621	2589	340	21	96	...	..	505
1895	3899	2612	543	20	115	...	...	609
1896	3552	2587	495	59	113	...	...	288
1897	3629	2301	451	17	137	...	...	723
1898	3662	2459	655	3	153	164	...	228
1899	3643	2616	519	9	191	139	51	118
1900	3438	2687	416	8	52	120	56	47
1901	3386	2640	408	18	76	158	19	40
1902	3357	2635	329	13	68	128	20	56
1903	3304	2330	304	20	53	117	24	28
1904	3100	2181	353	12	63	120	13	50
1905	3193	2274	290	17	39	190	7	29
1906	3418	2264	337	9	61	305	7	60
1907	3348	1828	311	4	57	407	9	70

## VACCINATION RETURNS FOR THE YEAR 1907.

TABLE XXXVII.

MONTH.	Successfully Vaccinated.	Died Unvaccinated.	Exemptions.	Postponements.	Removals not traced.	Insusceptible.	Removed and traced out of district.	Unaccounted for not Vaccinated.	Successfully Vaccinated each Quarter.	Exemptions each Quarter.
January ..	228	29	25	2	1	..	2	4	612	89
February	180	28	26	10	6	..	1	4		
March.....	204	29	38	5	8	1	1	6		
April .....	236	21	33	9	9	..	1	6	641	88
May.....	208	24	26	8	7	1	..	10		
June .....	197	22	29	9	14	1	1	9		
July .....	190	34	33	8	12	1	2	22	452	122
August ...	164	23	38	4	7	..	1	27		
September	98	28	51	2	6	..	..	71		
October ...	64	28	46	..	..	..	..	123	123	108
November	31	24	36	..	..	..	..	185		
December	28	21	26	..	..	..	..	195		
Totals ...	1828	311	407	57	70	4	9	662	1828	407

## PUERPERAL FEVER.

There were 25 notifications of Puerperal Fever from medical men, including 12 deaths, during 1907, compared with 12 such notifications, including five deaths, during 1906.

Midwives who have been in attendance upon cases of Puerperal Fever have been interviewed specially by myself, and the necessary steps have been taken regarding cleanliness, disinfection, burning of dangerous articles, etc.

Since the appointment of the two lady inspectors, the Midwives' Act of 1902 has been administered in a more satisfactory manner than was possible before. The work has been carried out in close association with preventive measures against infantile mortality.

In my Annual Report for 1906 I gave a copy of the directions to midwives, which had been issued by the Central Midwives' Board.

During 1907 these directions have been revised, and the following is a copy of the current rules :—

# REGULATING, SUPERVISING, AND RESTRICTING WITHIN DUE LIMITS THE PRACTICE OF MID- WIVES.

## DIRECTIONS TO MIDWIVES CONCERNING THEIR PERSON, INSTRUMENTS, &c., ; THEIR DUTIES TO PATIENT AND CHILD ; AND THEIR OBLIGATIONS WITH REGARD TO DISIN- FECTION, MEDICAL ASSISTANCE AND NOTIFICATION.

*Note.*—When engaged to attend a labour the midwife should take an opportunity of visiting the patient in her own house to advise as to personal and general arrangements for the confinement.

(1) The midwife must be scrupulously clean in every way, because the smallest particle of decomposing matter may set up puerperal fever.

She must wear a dress of washable material, and over it a clean washable apron.

*Note.*—It is best to have the sleeves of the dress made so that the midwife can tuck them well up above the elbows.

A midwife, who is attending any case which is septic or in which there are foul-smelling discharges, must not go to another case without first changing her dress and thoroughly cleansing and disinfecting her hands and forearms and such appliances as she may have had occasion to use.

For list of appliances see 2 (a).

*Note.*—Unless the cleansing process be thoroughly carried out there will be, even after a healthy confinement, remains of blood, lochia, or liquor amnii on the fingers, and especially under the nails, which will there undergo decomposition, and so become dangerous to the next patient attended. The midwife must, therefore, keep her nails cut short, and preserve the skin of her hands as far as possible from chaps and other injuries.

(2) When called to a confinement a midwife must take with her in a bag or basket furnished with a washable lining :—

(a) An appliance for giving vaginal injections, a different appliance for giving enemata, a catheter, a pair of scissors, a clinical thermometer, and a nail-brush.

The Local Supervising Authority may, in the case of untrained midwives, use its discretion with regard to insisting upon the carrying of a catheter and appliances for giving vaginal injections.

(b) An efficient antiseptic for disinfecting the hands, &c.

(c) An antiseptic for douching in special cases.

(3) Before touching the genital organs or their neighbourhood the midwife must on each occasion disinfect her hands and forearms.

(4) All instruments and other appliances must be disinfected, preferably by boiling, before being brought into contact with the patient's generative organs.

(\*5) Whenever a midwife has been in attendance upon a patient suffering from puerperal fever, or from any other illness supposed to be infectious, she must disinfect herself and all her instruments and other appliances, to the satisfaction of the Local Supervising Authority, and must have her clothing thoroughly disinfected before going to another labour. Unless otherwise directed by the Local Supervising Authority, all washable clothing should be boiled, and other clothing should be sent to be disinfected by the Local Sanitary Authority.

\* See Rule 24.

#### DUTIES TO PATIENT.

(6) A midwife in charge of a case of labour must not leave the patient without giving an address by which she can be found without delay ; and after the commencement of the Second Stage, she must stay with the woman until the expulsion of the placenta, and as long after as may be necessary. In cases where a doctor has been sent for on account of the labour being abnormal or of there being threatened danger (see Rule 18), she must await his arrival and faithfully carry out his instructions.

(7) The midwife must wash the patient's external parts with soap and water, and then swab them with an antiseptic solution on the following occasions :—

- (a) Before making the first internal examination ;
- (b) After the termination of labour ;
- (c) During the lying-in period, when washing is required ;
- (d) Before passing a catheter.



For this purpose the midwife must on no account use ordinary sponges or flannels, but material which can be boiled before use, such as linen, or burnt afterwards, such as cotton wool.

(8) No more internal examinations should be made than are absolutely necessary.

(9) The midwife in charge must in all cases of labour examine the placenta and membranes before they are destroyed, and must satisfy herself that they are completely removed.

(10) The midwife must remove soiled linen, blood, fæces, urine, and the placenta from the neighbourhood of the patient and from the lying-in room as soon as possible after the labour, and in every case before she leaves the patient's house.

(\*11) The midwife shall be responsible for the cleanliness, and should give full directions for securing the comfort and proper dieting, of the mother and child during the lying-in period, which shall be held, for the purpose of these regulations and in a normal case, to mean the time occupied by the labour and a period of ten days thereafter. (See Rule 19).

\* See Rule 24.

(12) A case of normal labour in these regulations shall mean a labour in which there are none of the conditions specified in Rule 19 below.

#### DUTIES TO CHILD.

(13) In the case of a child being born apparently dead, the midwife should carry out the methods of resuscitation which have been taught her.

(14) As soon as the child's head is born, and if possible before the eyes are opened, its eyelids should be carefully cleansed.

(†15) On the birth of a child which is in danger of death, the midwife shall inform one of the parents of the child's condition.

† It is highly desirable that the midwife should see that every birth occurring in her practice is notified to the Local Supervising Authority within 48 hours, together with the name and address of the parent.

#### GENERAL.

(16) No midwife shall follow any occupation that is in its nature liable to be a source of infection, or shall (except under the circumstances hereinafter mentioned) undertake the duty of laying out the dead.

In no case must a midwife lay out the body of any patient on whom she has not been in attendance at the time of death, or a body upon which a post mortem examination has been made.

A midwife will not transgress this rule if, at the discretion of the Local Supervising Authority, she—

(a) Prepares for burial the body of a lying-in woman, a still-born child, or an infant dying within ten days ; or,

(b) Lays out a dead body in a case of non-infectious illness, provided that she is not attending a midwifery case at the time.

After laying out a dead body for burial she must undergo adequate cleansing and disinfection.

(17) A midwife must note in her Register of Cases each occasion on which she is under the necessity of administering any drug other than a simple aperient, the dose, and the time and cause of its administration.

CONDITIONS IN WHICH MEDICAL HELP MUST BE  
SENT FOR.

(\*18) In all cases of abortion, of illness of the patient or child, or of any abnormality occurring during pregnancy, labour, or lying-in, a midwife must explain that the case is one in which the attendance of a registered medical practitioner is required and must hand to the husband or the nearest relative or friend present the form of sending for medical help (see Rule 21 (a)) properly filled up and signed by her, in order that this may be immediately forwarded to the medical practitioner. If for any reason the services of a registered medical practitioner be not available, the midwife must, if the case be one of emergency, remain with the patient and do her best for her until the registered medical practitioner arrives, or until the emergency is over.

After having complied with the Rule as to the summoning of medical assistance, the midwife will not incur any legal liability by remaining on duty and doing her best for her patient.

(\*19) The foregoing rule shall apply :—

(1) In all cases in which a woman during *Pregnancy*, *Labour*, or *Lying-in* appears to be dying or is dead.

PREGNANCY :

(2) In the case of a *Pregnant* woman :

- (a) If the patient is a dwarf or deformed ;
- (b) When there is loss of blood ;
- (c) When there is any abnormality or complication, such as —

Excessive sickness,

Puffiness of hands or face.

Dangerous varicose veins.

\* See Rule 24.

## LABOUR :

(3) In the case of a woman in *Labour* at or near term, when there is any abnormality or complication, such as—

A malpresentation,

Presentation other than the uncomplicated head or breech,

Where no presentation can be made out.

Where there is excessive bleeding,

Where two hours after the birth of the child the placenta and membranes have not been completely expelled,

In serious cases of rupture of the perinæum, or of other injuries of the soft parts.

## LYING-IN :

(4) In the case of a *Lying-in woman*, when there is any abnormality or complication, such as—

Abdominal swelling and tenderness,

Offensive lochia, if persistent,

Rigor, with raised temperature,

Rise of temperature above  $100.4^{\circ} F.$ , with quickening of the pulse for more than twenty-four hours.

Unusual swelling of the breasts with local tenderness or pain,

Secondary post-partum hæmorrhage,

White leg.

## THE CHILD :

(5) In the case of the *Child*, when there is any abnormality or complication, such as—

Injuries received during birth.

Any malformation or deformity in a child that seems likely to live,

Dangerous feebleness,  
 Inflammation of the eyes, however slight,  
 Serious skin eruptions,  
 Inflammation about the navel.

#### NOTIFICATION TO THE LOCAL SUPERVISING AUTHORITY.

(20) (1) The midwife must send notice to the Local Supervising Authority, in accordance with Rule 21, in the following cases :—

\*(a) *Medical help*.—Whenever she has advised under Rule 18 that a registered medical practitioner should be sent for.

\*(b) *Deaths*.—In all cases in which the death of the mother or of the child occurs before the attendance of a registered medical practitioner.

\*(c) *Stillbirths*.—In all cases of stillbirth where a registered medical practitioner is not in attendance.

*Note*.—A child is deemed to be stillborn when after being completely born it has not breathed or shown any sign of life. (See Rule 13.)

(2) *Change of name or address*.—The midwife must immediately notify the Local Supervising Authority of any change of her name or address.

(\*21) For the purposes of the preceding rules the use of the following forms shall be compulsory :—

\* See Rule 24.

(a) *Form of sending for Medical Help.*

No. .... Date .....

This notice is sent on behalf of\* .....

.....

Address .....

I have advised that medical assistance be obtained on account

of .....

.....

.....

.....

Signed ..... Certified Midwife.

†The case is urgent.

Sent to (name of doctor) .....

at (address) .....

Time of sending message .....

\* Here fill in name of patient.

†If the case is not urgent cross this out.

The midwife shall make two copies of the above, making with the original document three forms in all. The original she shall keep, the second she shall hand to the patient's representative in accordance with Rule 18, and the third she shall send to the Local Supervising Authority as soon as possible, but within 24 hours at the latest.



(b) *Form of Notification of Death.*

To the Local Supervising Authority of the \*Administrative  
 County of .....  
 or \*the County Borough of .....  
 or \*the Urban or Rural District of .....

I, the undersigned, being a Midwife holding the Certificate No. .... of the Central Midwives' Board,  
 hereby notify that the following death occurred in my practice  
 on the ..... day of .....,  
 19....., before a registered medical practitioner was in  
 attendance.

Name of Midwife .....

Address of Midwife .....

.....  
 Name of deceased .....

Address of deceased .....

Age .....

Date of delivery .....

\* Strike out the words not applicable.

*(c) Form of Notification of Stillbirth.*

To the Local Supervising Authority of the \*Administrative  
 County of .....  
 or \*the County Borough of .....  
 or \*the Urban or Rural District of .....

I, the undersigned, being a Midwife holding the Certifi-  
 cate No. .... of the Central Midwives' Board, hereby  
 notify that, on the ..... day of .....  
 19....., I delivered .....  
 living at .....  
 of a still-born child, no registered medical practitioner being  
 in attendance. ....

Sex .....

Full terms or premature (No. of months) .....

Condition of child (whether macerated or not).....

.....

Presentation .....

Name of Midwife .....

Address of Midwife .....

.....

\* Strike out the words not applicable.

(22) A midwife shall keep a Register of Cases in the following form :—

No. ....

Date of expected confinement .....

Name and address of patient .....

.....

No. of previous labours and miscarriages .....

Age .....

Date and hour of Midwife's arrival .....

Date and hour of Child's birth .....

Presentation .....

Duration of 1st, 2nd, 3rd stage of labour .....

Complications (if any) during or after labour .....

.....

Sex of infant ..... Born living or dead .....

Full time or premature—No. of months .....

If Doctor sent for ..... Name of Doctor .....

Date of Midwife's last visit .....

Condition of Mother then (See Rule 11. above) .....

.....

Condition of Child then .....

Remarks\* .....

.....

.....

.....

\* If any drugs, other than a simple aperient, have been administered state here their nature and dose, the reason for giving them, and the stage of labour when given.

(\*23) The Local Supervising Authority shall make arrangements to secure a proper inspection of the Register of cases, bag of appliances, etc., of every midwife practising in the district of such Authority, and, when thought necessary, an inspection of her place of residence, and an investigation of her mode of practice.

(24) The rules or parts of rules in this section (E) which are marked with an asterisk shall not apply to midwives exercising their calling under the supervision of a duly appointed medical officer within Hospitals approved by the Central Midwives' Board. (†)

(25) Nothing in this section (E) shall apply to certified Midwives exercising their calling in Workhouses or Poor-law Infirmaries under the supervision of a duly appointed medical officer.

(26) The proper designation of a certified midwife is "Certified Midwife." thus e.g.,

Mary Smith,

Certified Midwife.

No abbreviation in the form of initial letters is permitted, nor any other description of the qualification.

\* See Rule 24.

† These Rules are Nos. 5, 11, 18, 19, 20 (1), 21, and 23.

The following notes represent the work of the two lady inspectors in visiting and observing the manner in which the midwives of Blackburn have carried out their duties during 1907.

The number of midwives on the Blackburn Register at the beginning of 1907 was 67, and of these seven have ceased to practice and have given up their certificates during the year under review. 46 midwives are practising in Blackburn at present, four of whom are certificated by examination.

During 1907 midwives were present at 2,591 births in Blackburn. Of this number 1,193 were attended by midwives alone, and 202 by "handy women." 205 cases were attended by midwives and doctors together. The trained midwives, i.e., those certificated by examination, were present at 293 births.

The following statement indicates the number of cases in which the midwife advised that a Registered Medical Practitioner should be sent for, in accordance with Rule 18.

#### LABOUR :

##### Presentations—

Occipito-Posterior .....	1
Face .....	2
Foot .....	4
Abnormal Pelvis .....	5
Placenta Praevia .....	1
Tedious Labour .....	7
Rupture of Perineum .....	7
Convulsions .....	3

#### LYING-IN :

Rise of Temperature .....	3
---------------------------	---

#### NEWLY-BORN CHILD :

Premature .....	4
Malformation .....	1
Debility .....	1
	—
Total .....	39
	—

It is very significant that 31 of the above 39 records came from two trained certificated midwives.

Out of the 184 still-births in the Cemetery Register only seven were notified by midwives.

Midwives were associated with eight notified cases of Puerperal Fever during 1907.

The following particulars refer to the methods of practice amongst Blackburn midwives:—

#### CONDITION OF CASE-BOOK.

No. of Case-books kept in good order by 9 midwives.

„	„	„	fair	„	20	„
„	„	„	bad	„	4	„

Case-books were not kept by 10 midwives.

22 midwives may be described as illiterate. Many of those who can read and write do not understand the stages of labour, the presentations, or abnormalities. The lady inspectors have effected some improvement by demonstration and explanation, but there is very much to be desired still.

#### CONDITION OF MIDWIFERY BAGS.

Bags kept in good condition by 19 midwives.

„	„	bad	„	11	„
---	---	-----	---	----	---

Bags with removable linings were kept by 11 midwives.

No bags were used by 16 midwives.

I have frequently protested against the use of old dirty bags, containing a miscellaneous collection of vaseline, thread, syringes, etc., all dirty.

Number of appliances and antiseptics required by the					
Central Midwives' Board .....					
8					
No. of midwives who have all the required appliances, etc., 16					
„	„	„	some of the appliances, etc.,	25	
„	„	„	no appliances, etc. ....	5	



## TAKING OF TEMPERATURES.

No. of midwives who take temperatures of lying-in women,	15
„ „ „ do not take „ „	27

536 confinements were attended by the 27 women who do not take the temperatures of their patients. This is a serious omission.

## CLEANLINESS OF MIDWIVES.

No. of midwives who wear print dresses (washable) ....	28
„ „ „ print blouse and woollen skirt ...	12
„ „ do not wear washable outer garments .....	5

As regards the personal cleanliness of these women, 36 may be described as clean and 10 as not clean.

The houses of 38 midwives were clean, and the houses of eight midwives should be cleaner. The condition of hands and nails varied as a rule with the amount of domestic cleaning, etc., which these women carried out in addition to their special work. A midwife's dirty hands and finger nails constitute a great source of danger to a lying-in woman.

I am of opinion that many of the midwives do not have baths as often as they should. I am also sure that sufficient care is not taken by many midwives to cleanse their hands thoroughly before examining a patient.

Also the eyes and mouths of newly-born infants are not cleansed as they should be in many cases.

## KNOWLEDGE OF ANTISEPTICS.

No. of midwives who understand the use of antiseptics,	14
„ „ do not „ „ „	32
„ „ use antiseptics	24
„ „ do not „ „ „	22

In order that the midwives might have definite instructions the following notes were prepared in card form, and sent to each midwife.

## COUNTY BOROUGH OF BLACKBURN.

### INSTRUCTIONS TO MIDWIVES.

#### WITH REGARD TO THE MOTHER.

##### (1) *Care of the Nipples.*

You should make inquiry as to the condition of the nipples at previous confinements.

You should also make an examination of the nipples of the woman when engaged to attend her.

In all cases where "cracked" nipples have occurred and especially in *first* confinement cases, you should recommend Vaseline, Lanoline, or some other greasy substance to be well rubbed into the nipples.

Spirits may afterwards be applied to harden them.

(2) *Strict Cleanliness* should be strongly advised, both of the body and clothing of the woman.

(3) After delivery, and every day till you leave the case, you must wash the "private parts" of the mother with a disinfectant.

(4) You must take the temperature and pulse of the mother daily till you cease to visit the case.

(5) You must observe all rules of the Central Midwives' Board with regard to the mother, especially Rule 17, a. b. c. d. and all the different conditions of the mother and child referred to in them.

## WITH REGARD TO THE INFANT.

(1) You must avoid dressing the cord with vaseline, but use a mixture of zinc and boracic powder.

(2) You should encourage the mother to breast feed the infant, unless she is ordered not to do so by a Doctor.

(3) If it is impossible for the mother to breast feed her infant, you should recommend boiled or sterilized cows' milk and water and a bottle with a reversible teat, and not one with a long tube.

(4) You should tell the mother to feed the infant at regular intervals, never less than two hourly, and with a given quantity of milk and water (feeds of two to four tablespoonfuls the first month), and warn the mother against giving the infant bread and milk before it is nine months old.

(5) You should tell the mother to scald the bottles each time they are used, and keep them in cold water afterwards.

(6) You should keep the eyes, mouth and nose clean by washing them daily with pieces of linen and clean water, or with boracic lotion for the eyes.

Use one piece of linen for each eye, another piece for the mouth and nose.

This may prevent sore eyes, thrush ("frost"), and stopped-up nose.

(7) You should provide ventilation by having the bedroom window open at the top, night and day, and the kitchen window open in the same way.

(8) You should advise the mother to clothe the infant in flannel and lightly, both for night and day.

## WITH REGARD TO PRACTICE.

(1) You must keep your case-register up to date and filled up with all particulars, especially including columns 1, 2, 4, 5, 7, 8, 9, and 16.

(2) You must always wear, when visiting a case or attending a confinement, a print dress.

(3) You are expected to take particular care of your hands and finger nails, and keep them very clean. Disinfect them thoroughly when at a confinement by first washing them with hot water and soap, using a nail brush and holding them in a disinfectant for two or three minutes before making an internal examination.

(4) You must observe Rule 19 (6), which says—When a registered practitioner is sent for, the Midwife must state in writing the condition of the patient and the reason of the necessity for sending for medical advice. The Midwife shall make two copies on the approved form by means of transfer paper or otherwise. She shall preserve one of the copies for herself, and shall send the other by the post to the Health Office, 51, Ainsworth Street, within 12 hours.

(5) You must take to each case a bag with a washable lining which can easily be removed for washing, and with the following appliances in it, according to Rule 2. a. b. c. d. :

(1) A douche can, tube, and glass nozzle, for vaginal injections. This must be kept for this purpose alone, and the nozzle must be boiled after each usage.

(2) An enema syringe for rectal injections.

(3) A catheter.

(4) A pair of scissors.

(5) A thermometer.

- (6) A nail brush.
- (7) An antiseptic for the hands, like lysol, corrosive sublimate tabloids, cyllin.
- (8) An antiseptic for douching, like the above.
- (9) An antiseptic lubricant for smearing the fingers, catheters, douche nozzles, and enema nozzle, before they touch the patient, as corrosive glycerine, carbolized vaseline, cyllin lubricant.
- (10) Ligatures, in a bottle (boiled).

(6) You must keep all such appliances properly disinfected, either by boiling them 10 minutes or keeping them in a strong disinfecting solution for four hours, after each time of using.

(7) You are working under the Rules and Regulations of the Central Midwives' Board, and you must comply with and carry out those rules in every case.

(8) You must notify any change of address to the Health Office, 51, Ainsworth Street, immediately.

#### RULES FOR FEEDING OF INFANTS.

Age.	Intervals of Feeding.	Number of feeds in 24 hours	Number of feeds at night after 10 p.m. to 7 a.m.	Amount at each feed.	Total amount in 24 hours.
1 to 4 weeks	2 hours.	10	2	1 to 2 oz. 2 to 4 Table-spoonfuls.	10 to 20 ozs. 20 to 40 Table-spoonfuls.
4 weeks to 3 months	2½ hours	8	1	2½ ozs. to 4 ozs. 5 to 8 Table-spoonfuls.	20 to 30 ozs.
3 months to 4 months	3 hours	7	1	4 to 5 ozs.	28 to 35 ozs.

2 tablespoonfuls—1 oz.

20 ozs. or 40 tablespoonfuls—1 pint.

Feeds to consist of half milk and half water.

ALFRED GREENWOOD, M.D., D.P.H.

(Medical Officer of Health),

Public Health Office,

51, Ainsworth Street,

Blackburn.

*September, 1907.*

It is to be hoped that the above measures continually adopted will result in an improved type of midwife.

The following is a list of Blackburn midwives, corrected to date :—



TABLE XXXVIII.

No.	Name.	Address.	Date of Enrolment.	Qualification.
9840	Almond, Hannah .....	Union Infirmary .....	1904—Nov. 24	L.O.S., May 27, 1904
3335	Alston, Mary Jane .....	4 Broom Street .....	" March 24	In Practice July, 1901
3817	Anderson, Rose .....	Nurses' Home, West Park Road .....	" April 24	Glasgow Maternity Hospital, Jan. 14, 1904
5824	Andrews, Mary .....	38 Nares Street .....	" June 30	In Practice July, 1901
5625	Ashcroft, Frances .....	24 Burnley Road .....	" June 30	Ditto
8037	Atherton, Esther Ann .....	4 Intack Crescent .....	" Sept. 29	Ditto
5626	Backhouse, Ruth .....	11 Queen's Road .....	" June 30	Ditto
21281	Barton, Elizabeth .....	39 Wellington Street .....	1905—April 27	L.O.S., July 11, 1899
5627	Baylie, Margaret .....	31 Shorrock Lane .....	1904—June 30	In Practice July, 1901
5788	Beard, Mary .....	2 Bright Street .....	" June 30	Ditto
3810	Bradley, Sarah Jane .....	44 Saunder's Road .....	" April 28	L.O.S., November 26, 1903
21335	Bridge, Sarah .....	Infirmary .....	1905—April 27	L.O.S., February 23, 1905
6235	Collins, Rose Ann .....	26 Lord Derby Street .....	1904—July 21	In Practice July, 1901

TABLE XXXVIII.—continued.

No.	Name.	Address.	Date of Enrolment.	Qualification.
5628	Conway, Mary Ann .....	35 Eccles Street .....	1904 - June 30	In Practice July, 1901
10257	Corrigan, Mary Ann .....	11 Henrietta Street .....	" Nov. 24	Ditto
5629	Croasdale, Elizabeth Alice .....	74 Leamington Road .....	" June 30	Ditto
8976	Donnelly, Mary .....	Woodfield .....	" Oct. 27	Ditto
18468	Doran, Annie .....	43 Daisy Street .....	1905—April 27	Ditto
10981	Dunwoody, Elizabeth .....	Union Infirmary .....	1904—Dec. 22	Ditto
13850	Foster Sarah .....	8 Hawkshead Street .....	1905—Feb. 23	Ditto
6954	Foxcroft, Alice .....	123 Revidge Road .....	1904 Sept. 29	Ditto
6523	Gabbutt, Mary .....	100 Leamington Road .....	" July 21	Ditto
6524	Galloway, Selina Ann .....	72 Duke's Brow .....	" July 21	Ditto
5826	Gee, Margaret .....	79 Pendle Street .....	" June 30	Ditto
3690	Gleeson, Annie .....	39 Great Bolton Street .....	" April 28	L.O.S., July 10, 1900
11058	Gordon, Ellen .....	10 Taylor Street .....	" Dec 22	In Practice July, 1901
6525	Green, Margaret .....	102 London Road .....	" July 21	Ditto

TABLE XXXVIII.—continued.

No.	Name.	Address.	Date of Enrolment.	Qualification.
1993	Hacking, Annie .....	14 Brothers Street .....	1904—Nov. 24	In Practice July, 1901
5623	Haden, Elizabeth .....	100 Preston New Road .....	„ June 30	Ditto
6674	Haworth, Mary .....	98 Haslingden Road .....	„ July 21	Ditto
5827	Houghton, Martha Jane .....	41 Charlotte Street .....	„ June 30	Ditto
7760	Houghton, Mary .....	42 Anvil Street .....	„ Sept. 29	Ditto
6526	Hummer, Elizabeth .....	89 Balacava Street .....	„ July 21	Ditto
21678	Isherwood, Ellen .....	Union Infirmary .....	1905—April 27	L.O.S., Feb. 23, 1905
7360	Johnson, Edith Mary .....	24 Bicknell Street .....	1904—Sept. 29	Glasgow Maternity Hospital, Aug. 1, 1904
9935	Johnston, Nancy .....	Union Infirmary .....	„ Nov. 24	L.O.S., May 27, 1904
5829	Latham, Elizabeth .....	40 Pickup Street .....	„ June 30	In Practice July, 1901

TABLE XXXVIII. continued.

No.	Name.	Address.	Date of Enrolment.	Qualification.
5630	Leigh, Elizabeth .....	91 London Road .....	1904—June 30	In Practice July, 1901
3819	Lightbown, Margaret .....	94 Livesey Branch Road ...	„ April 28	St. Mary's Hospital, Manchester, March, 1899
16641	Lonsdale, Hannah ... ..	18 Mayfield Terrace .....	1905—Mar. 23	In Practice July, 1901
16411	McCall, Elizabeth Alice.....	122 London Road .....	„ Mar. 23	Ditto
6527	Moore, Alice .....	84 Derby Street... ..	„ July 21	Ditto
5650	Newton, Mary ... ..	80 Whalley New Road .....	„ June 30	L.O.S., February 26, 1904
6609	Nixon, Mary Alice .....	37 Goldhey Street .....	„ July 21	In Practice July, 1901
1295	Noble, Laura A.nes.....	District Nurses' Home .....	„ Jan. 28	L.O.S., July 11, 1898
8593	Ormerod, Nancy .....	10 Hickory Street	„ Oct. 27	In Practice July, 1901
7210	Parker, Catherine Ann .....	Salisbury Hotel, Peter Street..	„ Sept. 29	Ditto
7209	Peacock, Sarah Elizabeth .....	15 Progress Street .....	„ Sept. 29	Ditto

TABLE XXXVIII.—continued.

No.	Name.	Address.	Date of Enrolment.	Qualification.
6072	Pearson, Caroline.....	111 Bonsall Street.....	1904—June 30	In Practice, July 1901
5830	Riding, Rebecca .....	63 St. Thomas Street .....	" June 30	Ditto
5935	Rimmer, Ellen .....	76 Artillery Street .....	" June 30	Ditto
5936	Sharp, Helen .....	5 Lodge Street .....	" June 30	Ditto
6228	Sherwin, Harriet .....	18 Johnston Street .....	" July 21	Ditto
5938	Speight, Betsy Jane .....	16 Lord Byron Street .....	" June 30	Ditto
6074	Twist, Mary .....	116 Preston New Road .....	" June 30	Ditto
8320	Walmsey, Susannah .....	2a Cob Street .....	" Oct. 27	Ditto
6076	Whalley, Jane Ellen .....	2 Bedford Street .....	" June 30	Ditto
6238	Whittaker, Hannah .....	33 Clinton Street .....	" July 21	Ditto

TABLE XXXVIII.—continued.

No.	Name.	Address.	Date of Enrolment.	Qualification.
6239	Wilson, Annie .....	40 Inkerman Street .....	1904—July 21	In Practice July, 1901.
5631	Wrigley, Mary ..	38 Montrose Street .....	,, June 30	Ditto
5939	Yates, Mary Alice .....	68 Newton Street .....	,, June 30	Ditto



TABLE XXXIX.—DEATHS IN CHILDREN DURING THE LAST TEN YEARS.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907
Puerperal Fever .....	2	8	10	9	11	5	3	10	5	12
Placenta Prævia—Flooding ..	1	2	1	4	4	2	4	3	4	1
Parturition .....	...	7	1	...	...	...	...	...	...	...
Puerperal Convulsions ..	...	...	1	5	4	2	...	2	3	...
Abortion—Miscarriage .....	...	1	...	1	3	2	2	2	1	2
Other Accidents of Child Birth ..	10	2	1	2	2	12	6	11	2	11
Puerperal Mania .....	...	...	...	...	1	...	1	...	...	2
Puerperal Thrombosis .....	...	...	...	...	2	...	...	2	3	1
	11	12	4	12	16	20	13	20	13	17
Number of Puerperal Cases Notified .....	7	13	14	11	18	11	7	24	12	25

## ERYSIPELAS.

During 1907, 99 cases of Erysipelas were notified and four deaths registered, giving a case mortality of 4.0 per cent.

During 1906, 112 cases were notified and nine deaths registered.

## WHOOPIING COUGH.

There were 41 deaths from Whooping Cough, compared with 17 deaths in 1906 and 11 deaths in 1905. They occurred in the age-periods, as follows:—

0-1	1-5	5-10	10 and upwards.
17	22	2	0

## INFLUENZA, BRONCHITIS, AND PNEUMONIA.

The number of deaths from Bronchitis and Pneumonia was 494, compared with 358 in 1906 and 404 in 1905; and the deaths from Influenza were 44, compared with 22 in 1906 and 20 in 1905.

Deaths from Bronchitis and Pneumonia in months:—

Jan.	Feb.	March	April	May	June
59	55	44	56	54	32
July	Aug.	Sept.	Oct.	Nov.	Dec.
19	22	17	34	55	47

The epidemic of Influenza, which occurred at the end of 1906, continued during the first two or three months of 1907, and no doubt accounted in some measure for the larger number of deaths from Bronchitis and Pneumonia.

## ALCOHOLISM.

During 1907, three deaths were directly caused by Alcoholism and Delirium Tremens. They were all males.

During 1907, 18 deaths were caused by Cirrhosis of the Liver, which is a disease frequently associated with Alcoholism.

The following is an analysis of the deaths from Alcoholism and Cirrhosis of the Liver, according to sex, and age-periods :—

Age.	Males.	Females.	Total.
15-25 .....	0 .....	0 .....	0
25-35 .....	0 .....	0 .....	0
35-45 .....	1 .....	1 .....	2
45-55 .....	4 .....	2 .....	6
55-60 .....	4 .....	3 .....	7
60-65 .....	4 .....	0 .....	4
65-75 .....	1 .....	1 .....	2
75 & upwards	0 .....	0 .....	0
	—	—	—
	14	7	21

## CANCER.

There were 113 deaths from Cancer during the year, compared with 108 during 1906 and 113 during 1905.

During the last four years Cancer, as a cause of death, appears to have increased. Perhaps more accurate diagnosis in these days and prolongation of life to the cancer age may account for the increase, which in that case would only be apparent. The parts of the body most frequently affected by Cancer, and which caused death during 1907, were the Uterus and the Alimentary Canal. How far diet may account for its prevalence in the latter situation, I cannot say.

An analysis of deaths as to the kind of Cancer shows that—

97 were returned simply as Cancer or Malignant Disease.

12	„	„	„	Sarcoma.
3	„	„	„	Epithelioma.
1	was	„	„	Scirrhus.

On examining the death returns for 1907 it was found that Cancer affected the following parts of the body :—

Uterus,	19.
Stomach,	17.
Breast,	9.
Liver,	8.
Rectum,	5.
Intestines,	10.
Pylorus,	5.
Œsophagus,	4.
Ovaries,	3.
Mediastinum,	4.
Pancreas,	3.
Cervical Glands,	3.
Jaw,	3.
Brain,	3.
Larynx,	2.
Face,	3.
Pelvis,	2.
Scrotum,	2.
Sternum,	1.
Gall Bladder,	1
Spleen,	1.
Femur,	1.
Bladder,	1.
Tongue,	1.
Not stated,	2.

TABLE XL.

## DEATHS FROM CANCER—1889-1907

Year.	Male.	Female.	Total.
1889 .....	20 .. ...	32 .. ...	52
1890 .....	14 .. .....	24 .....	38
1891 .....	19 .. .....	34 .....	53
1892 .....	14 .. .....	38 .....	52
1893 .....	23 .....	37 .....	60
1894 .....	23 .. .....	34 .....	57
1895 .....	33 .. ...	48 .....	81
1896 .....	25 .. .....	56 .....	81
1897 .....	28 .. ...	44 .....	72
1898 .....	36 .....	58 .. ...	94
1899 .....	28 .. .....	52 .....	80
1900 .....	33 .. .....	65 .....	98
1901 .....	27 .. .....	64 .. ...	91
1902 .....	40 .. .....	51 .. ...	91
1903 .....	35 .. .....	57 .....	92
1904 .....	33 .. ...	74 .. ...	107
1905 .....	46 .. .....	67 .....	113
1906 .....	36 .. .....	72 .. ...	108
1907 .....	45 .. .....	68 .....	113

## TUBERCULOSIS.

There were 222 deaths from Tuberculosis during 1907, compared with 202 during 1906.

Of these 222 deaths 133 were due to Phthisis or Tuberculosis of the Lungs.

During 1907 the death-rate from Tuberculosis was 1.65 per 1,000, and from Phthisis it was 0.98 per 1,000 living.

## PHTHISIS.

During the year 1907, 141 notifications of Phthisis were received from medical men, 88 of which were males and 53 females, compared with 137 notifications received last year.

Of these 141 notifications, 49 were received from the Infirmary and 51 were private.

Fifteen patients have been notified twice, and two have been notified three times by different medical men, since the voluntary notification of Phthisis was instituted in Blackburn in 1901.

The following table shows the number of notifications and deaths during 1907, arranged in months :—

### DEATHS.

Jan.	Feb.	March	April	May	June
14	14	14	6	14	7
July	Aug.	Sept.	Oct.	Nov.	Dec
14	4	8	8	14	12

### NOTIFICATIONS.

Jan.	Feb.	March	April	May	June
7	13	18	11	15	10
July	Aug.	Sept.	Oct.	Nov.	Dec.
2	5	15	14	12	19

### DEATHS FROM PHTHISIS.

102 deaths have been investigated by Dr. Lawrence as compared with 80 during the previous year, and the analysis of these inquiries is set out in the following notes. Of the deaths 62 were males and 40 females.



Of the 129 deaths 2 were under 1 year of age.

„	„	7	occurred between 1 and 15 years of age.
„	„	22	occurred between 15 and 25 years of age.
„	„	67	occurred between 25 and 45 years of age.
„	„	31	from 45 years and upwards.

Of the 102 deaths which were investigated, the length of disease was as follows:—

In 17 cases the illness had lasted from 1 to 3 months.

„	7	„	„	„	3 to 6	„
„	27	„	„	„	6 to 12	„
„	23	„	„	„	1 to 2 years.	
„	14	„	„	„	2 to 3	„
„	8	„	„	„	3 to 5	„
„	4	„	„	„	5 to 10	„
„	2	„	„	„	10 years.	

It is interesting to note the length of time during which each person continued to work after being infected, but as the date of onset of the disease can only be approximately fixed and that only by the information of relatives, when these are intelligent, the data for making this calculation are wanting in many cases.

Under one month three had continued working.

From 1 to 3 months 5 had continued working.

„	3 to 6	„	4	„	„
„	6 to 12	„	15	„	„
„	1 to 2 years	5	„	„	
„	2 to 3	„	3	„	„
„	3 to 4	„	2	„	„
„	4 to 5	„	1	„	„

Among these a considerable number of those working for the longer periods of time after the probable date of infection were females engaged in housework, and in these cases the so-called date of leaving off work coincides with the date at which they took to bed.

One school girl went to school at intervals after being affected with Tuberculosis.

### SOURCE OF INFECTION.

In the absence of positive evidence the determination of the source of infection must be largely a matter of guess-work, but when a person is known to have been associated closely with another who was suffering from Phthisis and in an infective condition, the probability of personal infection becomes very great. In 12 cases there was ground for suspecting personal infection. The details are as follows :—

(1) No. 2. Female, 29 years. One brother had died of Phthisis and one of Pneumonia in the last four years.

(2) No. 10. Male, 58 years. Three of his children, with whom he used to play, and two grandchildren died of Phthisis. There were other factors present—he was addicted to alcohol to such a degree that according to his son “beer had no effect on him”

(3) No. 42. Male, 37 years. Had lived with his sister, who died of Phthisis at the age of 39.

(4) No. 43. Female, 34 years. Husband died of Phthisis at the age of 28.

(5) No. 60. Male, 42. Brother died of Phthisis.

(6) No. 79. Female, 24. Two brothers died of Phthisis, which was also the probable illness of which the father died.

(7) No. 85. Female, 10. Father died of Phthisis. The child has always been ailing. Probably the date of infection was early.

(8) No. 90. Male, 20. Father ill at home with “Bronchitis” and “Water on Chest” (pleurisy with effusion), and a brother convalescing slowly from “Pneumonia.”

(9) No. 103. Male, 50. Wife died of Phthisis ten months previously.

(10) No. 104. Female, 18. Father died of Phthisis seven months previously.

(11) No. 112. Female, 25. Brother ill at present with Phthisis.

(12) No. 127. Male, 27. Youngest of family of ten, all others of whom died of wasting diseases.

The inquiry into the associations of the patients dying of Phthisis brought to light the fact that several of those whose deaths were investigated may have infected others:—

(1) No. 20. J. H., 31, has a long history of illness—is said to have been “always ailing.” Her child died of tubercular peritonitis.

(2) No. 37. Male 41, a coal miner, died of Phthisis seven months before his daughter. The father’s illness had lasted at least two years. The daughter’s illness had lasted 12 months, during the two first of which she was well enough to continue her work.

(3) No. 112. Female, 25. Died of an illness, the length of which could not be accurately determined. Her brother is at present ill with Phthisis, but is able to follow his work.

(4) No. 98. Female, 38. Died after an illness of three years. Her son, aged 12 years, has now been ill with Phthisis for less than a year, and is at present in a sanatorium.

In all the cases investigated not one was found in which a person dying of Phthisis was definitely known to have been closely associated with a Phthisical person at work.

## HEREDITARY DISPOSITION ASCERTAINED FROM DEATHS FROM PHTHISIS.

Out of 102 cases, 19 had a family history of Consumption.

In two cases both parents had died of Phthisis; in seven cases one of the parents, four cases being father only and three the mother only.

The family history in collateral branches showed that in five cases there had been Phthisis in the family. In one of these, two uncles, in one, three uncles, and in one, two uncles and one aunt had died of Consumption. These were on the father's side. In one case one uncle, and in another case two aunts on the mother's side had died of Phthisis.

In three cases one brother, and in one case two brothers, had died of Phthisis.

In three cases one sister had died of Phthisis.

## OCCUPATION.

There were 41 deaths from Phthisis amongst cotton operatives, as compared with 31 during 1900.

Of the deaths 24 were male and 17 females. The following is the age distribution of these 41 deaths:—

From 10 to 25 years 12 deaths occurred.

.. 25 10 45 .. 22 .. ..

.. 45 years and upwards 7 deaths occurred.

The number of cases among weavers was 21, of whom 13 were males and 8 females, as compared with six males and 18 females during 1906.

The remaining 20 cases among cotton operatives were distributed as follows:—There were six spinners, three winders, two overlookers, two cardroom-hands, two reachers, two creelers, two warpers, and one rover.

The tabular analysis of these 41 deaths:—

Character of Work.	Males.	Females.	Family History.	Intem- perate.	Temper- perate.	Total
Weavers .....	13	8	4	3	5	5
Spinners .....	3	3	2	3	1	1
Winders .....	—	3	1	—	2	1
Overlookers ..	2	—	1	1	1	—
Cardroom-hands	1	1	—	1	1	—
Reachers .....	2	—	1	—	—	2
Creelers .....	1	1	1	—	—	2
Warpers .....	1	1	1	—	2	—
Rovers .....	—	1	1	—	1	—

Deaths in other callings were:—Sixteen labourers, four ironworkers, three coal-miners, three carters, three shoemakers, two cabdrivers, two hawkers, two dressmakers, two tailors, one lodging-house keeper, one publican, one shop assistant, one tin-plateworker, one stonemason, one railway employee, one plasterer, one warehouseman, one clerk, one schoolboy, one tram inspector, one cabinetmaker, one laundress, one French polisher, and one employed in paper mill. The unclassified remainder of deaths occurred among females employed in domestic work at home.

Occupation is a powerful factor in the causation of Phthisis. Of labourers it may be said that their work is uncertain, exposes them to hardships such as getting wet, and is poorly paid

The work of a coal-miner compels him to breathe a dust laden atmosphere, and is productive of respiratory disease.

Carters, hawkers, and cabdrivers might be classed together owing to the similarity of their work, which is often uncertain, and exposes them to the rigour of the weather.

One stonemason died of Phthisis, and this termination of life is among stonemasons regarded as almost inevitable.

## SOCIAL HABITS AND STATUS.

The social habits and status of persons have an effect on the occurrence of Phthisis, and of social habits intemperance is a powerful factor in predisposing to infection by the tubercle bacillus.

Of the 102 cases investigated, information given by the relatives showed that 13 were addicted to alcohol in excess. Of these 13, two only had a family history of Phthisis.

Besides these 13, four were addicted to alcohol, but in these cases there was also the further factor of exposed work. In one of these there was a family history of Phthisis.

In three cases there was a history of alcohol and self-neglect, and one of these had a family history of Phthisis.

In one case the patient, interviewed shortly after notification, volunteered the information that he had drunk to excess and had often been short of food. (This patient died during 1907).

In one case ill-treatment by husband and worry were believed by the relatives to have led to Phthisis.

The poor social status of some of the cases dying of Phthisis may be inferred from the fact that 21 died in the Workhouse, and nine of these gave their address at one of the common lodging-houses in the Borough.

Four others who did not die in the Workhouse died in common lodging-houses.

Two patients died in the Infirmary.



## ASSOCIATED RESPIRATORY DISEASES AMONGST COTTON OPERATIVES SUFFERING FROM PHTHISIS.

There were three cases in which respiratory diseases preceded Phthisis, as follows :—

(1) Male, 43, weaver. Had Pneumonia at the beginning of his last illness.

(2) Female, 16, weaver. Had pneumonia and pleurisy preceding Phthisis.

(3) Female, 25, winder. Had had a cough for two years.

### PREVIOUS ILLNESSES.

Eight patients dated their illness from an attack of Influenza, from which they did not make a good recovery.

In five cases Phthisis had been preceded by Bronchitis and “winter cough.”

In four cases Pneumonia preceded the Phthisis.

In three cases an accident had preceded Phthisis—the accident in two cases resulting in broken ribs. In the third case the accident was a fall from a bicycle, and its association with the onset of Phthisis may be fanciful.

In three cases Anæmia was present before the discovery of the fact that the patient was Phthisical.

In two cases Phthisis was preceded by Pleurisy.

In two cases “repeated colds” had occurred before the discovery of the presence of Phthisis.

In two cases Male (16) and Female (4) Measles had preceded Phthisis.

In one case arsenical poisoning from beer had preceded Phthisis, but this case was also complicated by accident resulting in broken ribs, pleurisy, and pneumonia.

In one case blood-poisoning occurred in a previously healthy man, and from this he never completely recovered, dying ultimately of Phthisis.

In one case Typhoid Fever preceded Phthisis.

#### PREVIOUS TUBERCULAR DISEASE IN PHTHISICAL PATIENTS.

(1) Female, 24, weaver. Had tubercular glands in the neck some years before having Phthisis.

(2) Male, 20, cotton reacher. Hurt his knee. The joint became tuberculous. Six months later he died of Phthisis.

(3) Female, 21. Had had tuberculous glands in the neck. These were removed by operation. She subsequently died of Phthisis.

#### INSANITARY CONDITIONS AND OVERCROWDING AT HOUSES CONTAINING PHTHISICAL PERSONS.

Inquiries were made in 102 cases respecting the number of occupants of houses and the number of rooms.

The address of 13 of the cases was a common lodging-house, and nine of these died at the Workhouse. Two others died in an institution.

Of 98 private houses examined—

2 contained 3 rooms.			
64	„	4	„
15	„	5	„
9	„	6	„
6	„	7	„
2	„	8	„

Neither scullery nor cellar are included as rooms.

With regard to the number of occupants, there were five or less in 60 out of 98 houses.

Of the remaining 38—

20 contained 6 persons.			
12	„	7	„
6	„	8	„

Of the 20 containing six persons, 14 were four-roomed, three were five-roomed, two were six-roomed, and one was eight-roomed.

Of the 12 houses containing seven persons four were four-roomed, six were five-roomed, and two were six-roomed.

Of the six houses containing eight persons, five were four-roomed and one was five roomed.

It will be seen from the above that in certain cases, viz., where eight persons occupy a four-roomed house four persons must sleep in one bedroom there must be some overcrowding, and even where six persons occupy a four-roomed house there must be three persons in each bedroom, and where there are adults of different sexes it may be impossible to apportion the bedroom so equally.

The sanitary condition on the whole was fair. In one house the walls of the scullery were damp owing to defective sink fittings.

Eleven houses were very dirty, and eight of these 11 were also very dark.

Four houses were also very dark without being exceptionally dirty.

Three houses call for detailed notice, because the dirt there reached its worst possible degree.

1 (37). A four-roomed house. The sanitary fittings were satisfactory, having been recently improved. There were five occupants of the four rooms. The father and mother and daughter slept in the front bedroom and two lodgers in the back bedroom. All the rooms were low, window space small, and the windows incapable of opening. The father and the daughter both died of Phthisis during 1907.

2 (43). A four-roomed house not handicapped by any structural defects. The personal habits of the inmate observed were filthy. Animals, ferrets, and rats were kept in the back kitchen. A daughter of the tenant died of Phthisis. Her husband died of the same disease a few years previously.

3 (76). An old clothes shop. The sanitary fittings were good. The house, of four rooms, had an evil odour due to the presence of old clothes. It was badly lighted. Its nominal airspace was much reduced by the presence of large quantities of old clothes, and these latter contributed so much dust and odour that the house was barely habitable. The tenant died of Phthisis after a short illness.

The following is an analysis of the sanitary conveniences at the houses visited :—

47	had	fresh-water-closets.
8	,,	slop-water closets.
5	,,	privy-middens.
38	,,	pails.

### HOUSE INFECTION.

No case of house infection was discovered. In several houses two cases of Phthisis had occurred, but in no case had any considerable or even short interval elapsed between the death of the first case and the onset of Phthisis in the second case ; so that infection could not be said to be caused through the intermediation of the house, but was probably direct from the first patient to the second.

The above statement by no means exhausts the subject of house infection. Under the heading of " Social Status " it is mentioned that 13 persons gave an address at common lodging-houses. It may have been that the contraction of Phthisis, resulting in impaired efficiency for work and diminished wage-earning capacity, caused these cases to resort for lodging to the poorest shelter available—a common lodging-house. But it is difficult to escape the conclusion that these are foci of Tuberculosis, especially after one has seen the callous indifference of some of the inmates about spitting.

It is also to be remembered that 21 out of 102 cases investigated gave a history of " drink." It is almost certain that these 21 resorted for their drink to public-houses, where indiscriminate spitting is not uncommonly rife. Among the 129 deaths two occurred at public-houses.

### PRECAUTIONS TAKEN.

#### I.—At Home.

71 cases were isolated, i.e., they slept alone ; but in several cases they slept on a bed made in the living room.

91 persons burnt the sputum after expectorating on to rags or paper or into a special vessel.

In seven cases there was a definite history that no precautions as to the disposal of sputum were taken.

## II.—At Work.

Inquiries failed to elicit any information about precautions taken at work, and never once obtained information about the use of a pocket-spittoon, which is probably, in most cases, the only means of disposing of sputum at work.

## PHTHISIS NOTIFICATIONS.

82 notifications of Phthisis were investigated, accompanied by permission to make inquiries into the life history, source of infection, and the sanitary condition of the home of the patient suffering from Phthisis.

Of the 31 patients still alive at the end of the year, 21 are males and 10 females.



The ages of the males are :—

1	is	21	years of age.
3	are	27	„ „
1	is	29	„ „
1	is	30	„ „
1	is	34	„ „
1	is	36	„ „
2	are	39	„ „
2	are	41	„ „
1	is	45	„ „
1	is	48	„ „
4	are	50	„ „
1	is	52	„ „
1	is	55	„ „
1	is	60	„ „

The ages of the females are :—

2	are	16	years of age.
1	is	18	„ „
1	is	22	„ „
1	is	28	„ „
1	is	30	„ „
2	are	43	„ „
1	is	48	„ „
1	is	53	„ „

Length of illness :—

4	have	been ill	for an indefinite period
2	„	„	7 years.
6	„	„	4 „
5	„	„	2 „
7	„	„	1 year.
5	„	„	6 months
1	has	„	2 „
1	„	„	1 „

## FAMILY HISTORY OF PHTHISIS.

There is a history of Phthisis in the parents of four males and three of the females. In one of the male cases the mother died of Phthisis and the father of Alcohol.

Tuberculosis occurred in other members of the same family in three cases.

(1) No. 12. Male, 48. Had 12 children, nine of which are still living. Ages from 23 to four. One of the children is now ill with tubercular disease of the hip-joint, and one is ill with tubercular disease of the ankle.

(2) No. 13. Male, 34. Has had nine children. Five died young and one of these "wasted."

(3) No. 20. Female, 30. Eldest of family of eight. Two brothers, aged 22 and 19 years, died of Phthisis within two months of each other.

(4) No. 74. Male, aged 29. Family history of Phthisis. Child of two years ill at present with chronic hydrocephalus and tabes mesenterica.

In one case, No. 3, the occurrence of other respiratory disease with fatal result suggests Phthisis. The father of two children, a daughter who died of "bronchitis" at seven years of age and a son who died of "bronchitis" at seven months, is suffering from Phthisis.

Personal infection can be traced with some degree of probability in three cases:—

(1) No. 20. Female, 30. Attended her two brothers, who died of Phthisis within two months of each other.

(2) No. 25. Male, 52. Father died of Phthisis. First wife died of Phthisis.

(3) No. 75. Female. 18. Nursed her mother, who died of Phthisis four years ago.

Occupation of 21 males 9 are weavers.

2 are stonemasons.

2 are clerks.

The rest comprise one winder, one soldier, one night-watchman, one hawker, one carter, one rope-maker, one iron-moulder, and one traveller.

Of 10 females,

6 are winders (one a "half-timer").

2 „ weavers.

1 is a rover.

1 works in a paper mill.

Of the men. four were at the time of inquiry in regular work and one was doing occasional "jobbing gardening."

Of the ten females. all have left the mill or factory, eight are engaged in housework, one has found easier employment in a shop, and one has given up work altogether.

#### PREVIOUS ILLNESS.

3 had had influenza.

2 „ pleurisy.

2 „ "cough."

2 „ pneumonia.

2 „ anæmia.

1 „ bronchitis.

1 „ dropsy.

1 „ spinal caries.

1 „ arsenical poisoning (1900).

## HABITS.

Seven of the males have taken alcohol to excess. Five are teetotal.

One female lives an irregular life.

## SANITARY CONDITION OF HOUSES VISITED.

22 houses had 4 rooms

6 „ 6 „

3 „ 2 „

Overcrowding occurred in two cases.

(1) No. 28. Where nine people occupied two bedrooms.

(2) No. 35. Where six people occupied a two-roomed house.

15 houses had pail-closets.

13 „ fresh-water closets

2 „ slop-water closets.

1 „ a privy midden.

## PRECAUTIONS TAKEN AT HOME.

19 expectorated on paper or rags and burnt them.

7 expectorated into a vessel and burnt the sputum.

5 took no precautions.

14 carried out isolation by sleeping alone.

17 slept with some other member of the family.

The advisability or otherwise of erecting an Open-Air Sanatorium in Blackburn received a considerable amount of attention locally during the year.

At a meeting of the Blackburn Health Committee, held on December 9th, 1907, a report was read by Mr. Malam Brothers, on behalf of the Charity Organisation Society, on an "Open-Air Sanatorium for Consumptives."

In this report it was stated that this question was brought before the Committee of the Charity Organisation Society by reason of the very many applications made to the Committee for assistance from persons suffering from Consumption and unable to work, and that the object of the Committee of this Society was mainly to relieve cases of distress of a temporary character. The report stated that this Society, after various meetings and inquiries, arrived at the conclusion that it might be a means of bringing about a considerable amelioration of the present distress if a local Open-Air Sanatorium was erected and maintained by the Health Committee.

The report contained many references to my own previous report to the Health Committee, made in September, 1905, in which I stated that in my opinion, at that time, it was impossible to state from statistics that open-air sanatoria in England had been a success owing to a lack of unanimity in recording these statistics. I also stated in this report that if there were satisfactory records of permanently good results from this method of treatment it would always be necessary to consider carefully two very important points, viz. :—(a) Provision for the wife and family whilst the father is in the sanatorium for six or 12 months. (b) Arrangements that the patients when discharged from the institution should not be compelled to follow their former trade, if such were likely to cause a recurrence of the disease. I then said: "At the present juncture I feel that I cannot take the responsibility of advising you to erect an open-air sanatorium for the treatment of consumption in Blackburn."

The Committee of the Blackburn Charity Organisation Society felt, however, that a trial of the open-air treatment for consumptives might be made on an inexpensive scale, compared with my previous estimate. The Committee stated that they

had gone into particulars of various establishments, and sought information from many towns, and had also visited and inspected one institution, which, they thought, was likely to offer reliable facts. The institution they visited is the sanatorium carried on by Dr. Jane Walker in Norfolk, and the description of this building was given in the report.

It appears that Dr. Walker does not class any case hopeless until she has tried it, and declines to make any rules ; but she tries all cases together, both good and bad.

After discussion of this report of the Charity Organisation Society, the following resolution was passed by the Health Committee :—“ That the report be printed, together with the Medical Officer’s observations on the same, and copies be forwarded to the Committee for consideration at the next meeting.”

In accordance with this resolution, I presented certain statements for the consideration of the Health Committee at their meeting on January 13th, 1908, expressing the wish that my remarks might be considered in conjunction with my previous report on the provision of a sanatorium for the consumptives of Blackburn, printed in 1905, and also with my remarks on Consumption which have appeared in my annual reports since 1902.

In the first place I gave particulars as to the conditions necessary for a suitable site for the above purpose, and said that I did not know of any site in this district which would comply with all these requirements. I then drew attention to the need for a more uniform method in recording results of sanatorium treatment. I said, also, that it is a matter for inquiry in a population such as there is in Blackburn how many cases of Consumption, who are out of work through illness, are in a sufficiently early stage for sanatorium treatment to arrest the disease, and that it would be interesting to know how many early cases of this disease amongst the working people of Blackburn go to a doctor on that account.



It is common knowledge that frequently working men with a cough, expectoration, and perhaps loss of weight, will continue at their work as long as possible, and will only go to a doctor when the disease has made considerable progress. This difficulty may be diminished as the education of the people increases.

I cannot agree with the method quoted in the foregoing report of the Blackburn Charity Organisation Society of admitting early and late cases of Consumption into the same sanatorium.

If late cases are to be dealt with they should be treated in institutions and separated from early cases, the object in the former being isolation and comfort rather than arrest of the disease individually.

In my comments I gave also some interesting particulars respecting the after-care of consumptives discharged from sanatoria, especially in connection with the Kelling Open-Air Sanatorium at Holt, Norfolk. My final conclusion was as follows:—"As a result of further consideration of this subject I still hesitate at present to advise the Health Committee to erect a sanatorium in Blackburn, owing to the difficulties regarding a suitable site, and to a lack of knowledge of the number of persons known to the medical men in the town who are in the early stages of the disease, and who are suitable for sanatorium treatment. I do, however, advise the Health Committee to subsidise four beds in an existing open-air sanatorium for the treatment of early cases of Consumption, which should be selected with great care. This could be done for an annual cost of not exceeding four hundred pounds, and if each of the four cases stayed in the institution for six months this method would give a chance of relief to eight patients yearly."

At this meeting of the Health Committee on January 13th, 1908, the following resolution was passed:—"That four beds in a sanatorium be subsidised by the Corporation, and that it be referred to the Chairman, Vice-chairman, and the Medical Officer of Health, to select the sanatorium and make the neces-

sary arrangements therewith, and to prepare and submit to the Committee rules for the admission of cases. Also that reports on the results of the cases be submitted to the Committee from time to time by the Medical Officer of Health."

This resolution, however, was not confirmed by the meeting of the Blackburn Town Council on February 6th, 1908, but was referred back for further consideration.

The Health Committee again considered this question on February 17th, 1908, and adhered to their previous resolution.

At the meeting of the Blackburn Town Council, on March 5th, 1908, this resolution was confirmed.

After I had presented my various observations to the Health Committee a most important report was issued by Dr. Bulstrode, one of the Medical Inspectors of the Local Government Board, entitled "Sanatoria for Consumption, and Certain Other Aspects of the Tuberculosis Question."

As the conclusions arrived at by Dr. Bulstrode coincide in such a remarkable way with my own conclusions previously expressed, I have given below a short summary of the report, which will be of great interest to the Committee.

The report, an octavo volume of nearly 700 pages, copiously illustrated by photographs, plans and charts, contains a large amount of information so compiled and arranged as to be of the greatest use to sanitary authorities, and all those who desire to see the diminution in the death-rate from this disease. In the first chapter Dr. Bulstrode discusses the nature of tuberculosis with respect to its origin and causation, and says "That the disease may be considered as the outcome of two essential factors, namely, seed and soil, their inter-action being governed by the conditions under which they are brought into sustained relation."

He quotes Professor Osler, as follows :—" There are tissue soils in which the bacilli are in all probability killed at once. The seed has fallen by the wayside. There are others in which a lodgement is given and more or less damage done, but finally the day is with the conservative protecting force. The seed has fallen upon stony ground. There are tissue soils in which the bacilli grow luxuriantly; caseation and softening not relative and sclerosis prevail, and the day is with the invader. The seed has fallen upon good ground."

Attention is also drawn to the remarkable decline in mortality from Consumption during the last 50 years, a decline so considerable as to point to the possibility of its approaching extinction. The writer also states that in this country the attendants on the tubercular sick seldom fall victims to the disease. He also calls attention to the facts which indicate the widespread prevalence of tuberculosis among mankind, and which proves that a very large proportion of the poorer classes among the adult population are, or have been, infected by tubercle bacilli often in unrecognised and hence untreated forms.

The records of post-mortem examinations on persons who have died from other diseases or from accidents seem to suggest that old tuberculous lesions are constantly detected when carefully looked for.

This indicates the frequent curability of the disease even by the natural powers of resistance. It is probable that frequent or prolonged exposure to infection under conditions of overcrowding, dirt, defective light and ventilation, under-feeding and the like, would often entail considerable danger.

Proceeding to the consideration of the value of the sanatorium treatment of pulmonary tuberculosis. Dr. Bulstrode points out that at this early stage of the progress of the movement in this country it is both undesirable and impossible to draw precise conclusions from the evidence so far available. He says " That obviously a considerable number of persons with Phthisis live and work for many years after the recognition

of their ailment, and this independently of treatment in sanatoria." In any endeavour to estimate the value of sanatorium treatment, the method of selection of patients must be carefully kept in view, and he points out that there is much need for the adoption of some uniform system and classification with regard to the state of the patients, both on admission and discharge. The multitudinous terms now used are so vague and uncertain as to render comparisons between different institutions almost valueless. Dr. Bulstrode shows that the immediate results of sanatorium treatment are decidedly good and encouraging, the patients appearing to respond very rapidly to the better food, the rest, the pure air, and the regulated living which form parts of the sanatorium régime. This is more especially the case as regards gain in weight, but which in itself is not wholly satisfactory unless it be attended by definite improvement in the condition of the diseased lung or lungs. It is shown in Chapter 13 of this report that the best immediate results have been obtained in cases admitted during the earlier stages of the malady, and that in advanced cases the improvement has been of a far less satisfactory character, and he says that the general principle holds good, that the earlier the stage of disease the better are the immediate results, and that this undoubted fact should be appreciated and taken advantage of by the public.

As regards the after-results of sanatorium treatment, which are manifestly the most important, Dr. Bulstrode says that the statistics in certain institutions do not furnish the data so completely as could be wished, and it is not always clear whether the figures given include all the cases which have been admitted and discharged, or whether the figures relating to discharge and after-results are inclusive of cases which are in residence for a short time only, which suffered from complications and which died in the institution. In all cases it would be well to state definitely the actual course adopted, and to show what cases have been excluded or included in the cases of any given return. Moreover, in presenting these after-results it is a common practice to include in the totals cases which have only recently been discharged and which render the totals unduly favourable by virtue of the inclusion of cases which have only just left the



sanatorium, so that, in point of fact, the immediate results are mixed up with the permanent ones. It would be well if the practice of some sanatoria of omitting all results of patients who had left the sanatorium within 12 months was universally adopted, and Dr. Bulstrode also says that it would be very helpful if the after-results were stated separately for one year, as is done in Germany. Dr. Bulstrode has applied this method to the statistics of the Durham Sanatorium, and the result brings out in a very instructive manner the periods at which the patients who were able to work when discharged gradually became incapacitated. In many institutions the words "fit for work" need more exact definition, and it is pointed out that a considerable number of early cases are indeed fit for work on their admission. Moreover, it would be instructive if, in statistics relating to sanatoria, the wages earned before and after treatment could be given.

Among other expectations held out by the early promoters of sanatoria it was maintained that they would tend to diminish the general mortality from Consumption alike by their direct efforts as life-saving institutions, and by their additional influence in promoting better domestic lighting and ventilation and better care against the defining of infective material.

It cannot be said that any evidence exists to show that these expectations have been realised. If better results in so far as the permanent arrest of the disease is concerned is to be secured by sanatoria, it is clear, as is brought out in many parts of the report, that better machinery must be devised for attracting cases at earlier stages of the malady. There is very great difficulty in securing such cases, and in spite of all efforts in this direction it cannot be said that substantial progress is being made. The importance of early recognition and treatment is not fully or even adequately recognised, and experience shows that the working-classes under existing conditions will not relinquish work and leave their families to charity or to the Poor-law unless they are compelled to do so, or unless some arrangements satisfactory to themselves can be made for the support of those dependent upon them during their absence. They prefer either to seek no

medical advice at all or to attend as out-patients at some hospital or dispensary. The state of things in this country presents in this respect a painful contrast to that existing in Germany, where a law of compulsory insurance compels the working-classes to make provision against sickness, and where the national character of this provision at once secures it against abuse and renders it fully effective for the purposes which it is designed to promote.

The third section of the report is entirely devoted to the question of the notification of pulmonary tuberculosis, with a view to bringing all occurring cases of the disease under the observation of the public health authorities, as is now done with regard to the various acute infectious diseases, fevers, diphtheria, and so forth.

Dr. Bulstrode concludes that it is difficult so far to demonstrate that the results in any one place as regards an increasing rate of fall in the death-rate curve are such as to lead to a preference for compulsory over voluntary notification, although it would seem that "compulsion" has led to an increase in the number of notifications. In Liverpool and Brighton, however, under a voluntary system the notifications are very materially in excess of the deaths.

There does not appear to be evidence pointing to the conclusion that really early cases are brought to light by compulsory notification, and it is at least conceivable that if any great disqualification were imposed upon the tuberculous subject from an accentuated idea of danger there might not improbably be some tendency in the direction of suppression both of early and advanced cases, and this question of the possible suppression of cases should always be held in view.

In Part 4 Dr. Bulstrode discusses the "Behaviour of Tuberculosis in Germany."



## DISINFECTION.

After each death from Phthisis I sent a letter stating that, for the protection of the health of the inmates, the house should be disinfected thoroughly, and offering to send men to carry out this work at the expense of the Health Department.

This offer was accepted in 62 instances out of the 133 deaths from this disease, as compared with 83 out of 124 deaths during 1906.

Sixty-two rooms at these 62 houses were disinfected, and also the following articles removed and disinfected:—

48	Beds.
44	Mattresses.
32	Bolsters.
39	Quilts.
15	Blankets.
26	Sheets.
7	Carpets.
54	Pillows.
15	Suits of Clothing.
73	Sundries.

Six beds, six mattresses, one bolster, four suits of clothing, and six sundries were destroyed by consent of the owners.

TABLE XLI.

Deaths from Tuberculosis for Ten Years

	1907.		1906.		1905.		1904.		1903.		1902.		1901.		1900.		1899.		1898.	
	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate	Deaths	Death Rate
General Tuberculosis..	8	0.05	14	0.10	17	0.12	10	0.07	8	0.06	18	0.13	22	0.17	6	0.04	4	0.03	8	0.06
Tubes Mesenterica ...	36	0.26	34	0.25	27	0.20	40	0.30	28	0.21	24	0.18	35	0.27	47	0.37	20	0.15	34	0.27
Acute Hydrocephalus & Tubercular Meningitis	36	0.26	24	0.17	33	0.24	28	0.21	47	0.35	51	0.39	23	0.18	14	0.11	8	0.06	7	0.05
Phthisis .....	133	0.98	124	0.92	142	1.06	125	0.94	122	0.93	163	1.25	150	1.17	148	1.16	152	1.20	154	1.22
Other Forms .....	9	0.06	6	0.04	7	0.05	8	0.06	8	0.06	6	0.04	12	0.09	30	0.23	33	0.26	13	0.10
Total .....	222	1.65	202	1.51	226	1.70	211	1.59	213	1.62	262	2.0	242	1.89	245	1.92	217	1.71	216	1.72

## FACTORIES AND WORKSHOPS.

The Factory and Workshop Act of 1901 has again been well administered during the year, and many important improvements have been carried out, especially in the factories.

There are 919 workshops, containing 1,177 rooms, of which 51 are underground, on the register for the year ending December 31st, 1907, including 63 domestic workshops and 96 new tenants, from whom notices of occupation have been received, thus showing an increase of 40 after the register has been corrected and the removals deducted.

The approximate number of males employed in these workshops is 1,792 and the number of females 1,148, as compared with 1,781 males and 1,104 females in 1906.

The inspections of the above workshops and workrooms have greatly increased, and the visits to factories have decreased accordingly. The visits to factories numbered 469 and visits to workshops 1,056, as compared with 748 and 441 visits respectively during 1906.

A summary of 2,731 visits may be seen in Table XLIII.

The 384 defects found have been set forth in Table XLIV., of which 342 have been remedied in Table XLII., the 42 defects outstanding being chiefly in connection with sanitary conveniences in factories, which it is expected will be remedied before the close of the present year (1908).

It will be noted that better results have been obtained during the year 1907, viz. :—Defects found, 384 ; remedied, 342 ; outstanding, 42. As compared with 1906, viz. :—Defects found, 499 ; remedied, 439 ; outstanding, 60.

I would point out that so far it has been unnecessary to resort to legal proceedings in order to get the defaulters to comply with my notices to remedy the defects found.

A summary of the defects found and remedied at factories is set forth in Tables XLV. and XLVI.

## I.—SANITARY CONDITIONS OF WORKSHOPS.

### (A) CLEANLINESS.

Three workshops were found to have dirty floors or windows.

No workshops were found to have dirty yards, as compared with three in 1906, and 57 rooms required limewashing at the Inspector's visit, as compared with 14 in 1906, this being on account of the increased number of visits to workshops.

### (B) AIR SPACE.

No workrooms were found to be overcrowded, as compared with none in 1906.

### (C) VENTILATION.

Eight workrooms were found to be deficient in ventilation, compared with none in 1906, 10 in 1905, nine in 1904, 28 in 1903, and 55 in 1902.

This increase over last year is on account of insufficient provision for ventilation being provided after alterations, or in workshops opened by new tenants and not sufficiently ventilated to meet the requirements.

### (D) DRAINAGE OF FLOORS ON WHICH WET PROCESSES ARE CARRIED ON.

These processes include tripe-boiling establishments, laundries, etc., and the drainage of these floors have been so satisfactory that there has only been cause for complaint in one instance of a bottle-washing establishment, where the floor had been laid unevenly after alterations.

## SANITARY CONVENIENCES IN WORKSHOPS.

The following is the character of the sanitary conveniences at the various workshops :—

709 Water Closets.

220 Pail Closets.

19 Privy Middens.

These figures show some improvement as compared with 1906 :—

694 Water Closets.

224 Pail Closets.

22 Privy Middens.

Notices outstanding at the end of the year 1906 were in connection with the following requirements at 23 factories :—

Additional sanitary accommodation required .....	49
Repairs or reconstruction of sanitary conveniences required .....	104
Defective urinals .....	13

Other defects not enumerated here are shown in Table LXIV.

During 1907 notices for the provision of the following requirements were issued to 21 factories and 10 workshops, viz. :—

Additional sanitary accommodation required at factories .....	19
Additional sanitary accommodation required at work- shops .....	9
	<hr/>
	28

Repairs or reconstruction of sanitary conveniences at factories .....	58
Repairs or reconstruction of sanitary conveniences at workshops .....	15
	<hr/>
	73
Defective urinals at factories .....	3

The following shows at a glance the number of additional water-closets provided and the reconstructions carried out during 1907, and also the number of outstanding defects at the end of the year :—

	Additional Sanitary Conveniences Required.	Completed during 1907.	Outstanding defects end of year 1907.
At the end of 1906. F. ....	49	31	22
During 1907. F. ....	19	8	12
„ „ W. ....	9	4	5

Reconstructions required—

At the end of 1906. F. ....	104	82	22
During 1907. F. ....	58	24	34
„ „ W. ....	6	5	1
	<hr/>	<hr/>	<hr/>
	245	154	96

Outstanding defects to sanitary conveniences at the end of the year 1907 :—

96 Sanitary Conveniences.



## SANITARY CONVENIENCES IN FACTORIES.

The following appears in Section 5 Factory and Workshop Act, 1901 :—

(1) Where it appears to an Inspector that any act, neglect, or default in relation to any drain, water-closet, earth-closet, privy, ashpit, water supply, nuisance, or other matter in a factory or workshop is punishable or remediable under the law relating to Public Health, but not under this Act, that Inspector shall give notice in writing of the act, neglect, or default to the District Council in whose district the factory or workshop is situate, and it shall be the duty of the District Council to make such inquiry into the subject of the notice and take such action thereon as seems to that Council proper for the purpose of enforcing the law, and to inform the Inspector of the proceedings taken in consequence of the notice.

Forty-eight notifications under the above (Section 5 Factory and Workshop Act, 1901) have been received from H.M. Inspectors, viz. :—Twenty-three of these were for factories and 25 for workshops, as follows :—

### NOTIFICATIONS FROM H.M. INSPECTOR OF FACTORIES WITH RESPECT TO FACTORIES.

CANTERBURY-STREET.—“ The sanitary conveniences for women and girls are not provided with doors.” No notice was sent, as the closets have just been converted from trough to pedestal wash-down w.c.'s, and owing to insufficient yard space there was no room for doors to be placed to each convenience.

CANTERBURY-STREET.—“ The sanitary convenience for the women and girls are not provided with doors.” Notice was sent to provide a door to each sanitary convenience used by females. Completed.

GRIMSHAW PARK.—“The sanitary conveniences for the women directly adjoining the shed are insufficiently separated from each other and have not separate doors.” No notice was sent, as the conveniences were converted from troughs to pedestal wash-down water-closets, and although an intervening ventilated space was formed, there is not sufficient room to hang doors to each convenience.

CHADWICK-STREET.—“Sanitary accommodation defective.” Notice was sent to provide three additional w.c.’s, so that there will be seven for 155 females; also to convert existing trough-closets and disconnect from workroom. Completed.

COBDEN-STREET.—“Sanitary conveniences not separate from mule rooms.” Notice sent to provide intervening ventilated spaces to three water-closets on the 2nd, 3rd, and 4th floors. To light and ventilate the water-closets. To take out short hopper and three long hoppers and replace with pedestal wash-down w.c.’s. To limewash walls and top of w.c.’s. To arrange that the two water-closets on first floor be used by females only. The two water-closets have been reserved for the use of females only. Nothing has been done with respect to the other recommendations.

BACK CORT-STREET.—“Sanitary conveniences are unsatisfactory.” Notices have been sent to the occupiers of two factories to provide suitable sanitary accommodation. This work is under consideration.

FORREST-STREET.—“Sanitary accommodation insufficient—four for 122 females.” Notice sent to provide one additional w.c., to convert iron troughs to pedestals, to convert winding-room w.c., to replace tape-room w.c., and disconnect from workroom. Completed.

PARADISE-STREET.—“Sanitary convenience unsatisfactory.” After the visit of H.M. Inspector the then existing w.c. was replaced with a pedestal wash-down w.c. of approved type.

CHAPEL-STREET.—“ Sanitary convenience unsatisfactory.”

Notice sent to provide a suitable door to pail cavity, and limewash the walls and roof. Completed.

MOSS-STREET.—“ Sanitary accommodation defective.

These are very bad. They communicate directly with the hot shed, into which air is drawn through them by extracting fans. There are no separate doors.” Notice sent to provide three additional w.c.’s, to convert and reconstruct existing w.c.’s so that there will be eight for 185 females and five and urinal for 117 males. This alteration is under consideration, and will probably be commenced shortly.

ROYSHAW.—“ Sanitary conveniences are not yet provided.”

In abeyance.

BENT GAP.—“ Only one sanitary convenience provided for

both sexes.” Notice sent to provide pedestal washdown water-closets of approved type for both sexes and to abolish the pail closets. Completed.

DARWEN-STREET.—“ Separate sanitary conveniences are

not provided for the sexes.” A pedestal wash-down water-closet has been provided in the cellar for females. The convenience for males is in the yard.

GRIMSHAW PARK.—“ Smell from closets in the mule-

room.” These conveniences cannot be converted owing to the position of the sewer.

DIXON-STREET.—“ Women’s sanitary conveniences have no

doors.” Not carried out.

GATE-STREET.—“ Sanitary accommodation defective. No

doors to women’s closets.” Not carried out.

DAISY-STREET.—“ Sanitary accommodation insufficient—

three for 119 females (three for 74 males).” Notice sent to provide two additional w.c.’s for females; also convert

the whole of the w.c.'s to those of approved type and repair division walls. Not yet started, as alterations are in contemplation which may involve demolition of the existing w.c.'s.

HARWOOD-STREET.—“Sanitary accommodation insufficient—four for 140 females, four for 98 males.” Notice was sent to provide four water-closets of an approved type for the 100 female weavers. This work has not yet been carried out.

ST. PETER-STREET.—“No sanitary accommodation provided for females.” Notice was sent, and approved accommodation was provided.

BOXWOOD-STREET.—“No doors provided for closets.” Notice was sent to convert pail closets to approved water-closets. This work is now in progress, extra accommodation being also provided.

LOWER DARWEN.—“Insufficient closet accommodation for males, and the accommodation for females is not separate and distinct.” This matter remains in abeyance owing to the fact that there is no sewer available.

KENYON STREET.—“No doors provided for w.c.'s.” Notice was sent to provide doors to women's water-closets and to repair the seat. Completed.

ALBERT-STREET.—“Sanitary accommodation not provided.” Notice was sent to provide a suitable pail closet. This is under consideration.

In addition to the above notifications received from H.M. Inspectors, the following complaint has been received by myself and investigated by an Inspector :—

HIGHFIELD-ROAD.—“ Sanitary accommodation defective.”

Notice was sent to provide two additional water-closets for use of females and convert the existing insanitary closets to those of modern type. Completed.

The following is a list of outstanding notices at the end of the year 1906 and work carried out during 1907 in connection with factories :—

QUARRY-STREET.—“ Sanitary accommodation insufficient—seven for 233 females.” Notice was sent to provide and maintain in good working order three additional water-closets. This work has not yet been completed.

STANLEY-STREET.—“ Sanitary accommodation insufficient—five for 145 females and four for 137 males.” Notice was sent to provide and maintain in good working order three additional water-closets, also to take out the defective and insanitary pan-closet and to replace the same with a good pedestal wash-down closet of an approved type for the use of the office staff. This work is still under consideration.

OAK-STREET.—“ Sanitary accommodation insufficient—two for 73.” Notice was sent and an extension of time was granted until the mill had been enlarged. The alterations are not yet completed.

WARD-STREET.—“ Sanitary accommodation insufficient—three for 120 males and four for 226 females. Only one women’s closet has a door.” A new range of six water-closets has been provided and the necessary alterations to the existing closets carried out.

HOLLIN BANK.—“ Sanitary accommodation insufficient and defective—three for 198 females; no doors.” Notice was sent and the necessary work carried out.



MARY-STREET.—“ Sanitary accommodation insufficient—five for 160 females and four for 124 males. Condition not examined.” Notice was sent to convert them to water-closets and provide three additional water-closets, but the work is still under consideration.

COBDEN-STREET.—“ Sanitary accommodation defective, no doors or partitions to weavers' closets, and number insufficient—three seats for 112 females.” Notice was sent to provide two additional water-closets and convert the existing trough-closets to pedestals of an approved type; also to provide partitions and doors to closets. Several firms have tendered quotations for the work, but nothing has yet been done.

WITTON.—“ No doors to women's closets.” This work has been completed as satisfactorily as conditions will allow.

EANAM.—“ Sanitary accommodation insufficient—three for 124 females.” Notice was sent to provide two additional water-closets, to convert the existing insanitary trough-closets to pedestal washdown closets of an approved type, and to repair the structure of the conveniences and screen urinal. A new roof has been fixed on this mill, at the completion of which it was intended to carry out the alterations to closets, etc., but nothing has been done.

SIMMONS-STREET.—“ A stable within the factory.” Notice has been sent to discontinue stabling horses within the factory. A new situation has been found for the stables, but building operations have not yet been commenced.

HIGH-STREET.—“ Complaint of smell from closet and stable. No ventilated passage between closet and workroom.” Notice was sent to provide an intervening ventilated space between the closet and the workroom. This has been done.



GREAVES-STREET.—“Sanitary accommodation insufficient—three for 100 females.” Notices were sent to provide and maintain one additional water-closet and to provide the existing conveniences with more light. This was done satisfactorily.

PATERSON-STREET.—“Sanitary accommodation insufficient—three for 117 males and three for 135 females.” Notice was sent to provide five additional water-closets and to convert and reconstruct the existing insanitary closets to those of modern type. Completed satisfactorily.

GRIMSHAW PARK.—“Sanitary accommodation defective. New women’s closets without doors. Query: Sufficient in number?” Notice was sent, and doors provided forthwith.

EDEN STREET.—“Sanitary accommodation insufficient—seven for 220 females and four for 90 males.” Notice was sent to provide and maintain two additional water-closets in good working order, and to convert and reconstruct the existing insanitary trough-closets to water-closets of modern type. This work was completed satisfactorily.

WILLOW-STREET.—“Sanitary accommodation defective. No doors to women’s closets; and insufficient—three for 77 males and five for 183 females.” Notice was sent to provide and maintain in good working order four additional water-closets and to convert and reconstruct the existing defective closets to those of modern type. Nothing has yet been done.

GEORGE-STREET WEST.—“To provide six additional water-closets and convert existing closets to those of modern type.” Completed.

PEEL-STREET.—“To provide one additional water-closet and convert and reconstruct existing closets.” Completed.

INFIRMARY-STREET.—“To provide three additional water-closets and convert and reconstruct existing closets. Completed.

KENT-STREET.—“ To provide one additional water-closet and convert and reconstruct existing closets to those of modern type.” Completed.

FOUNDRY HILL.—“ To convert and reconstruct the existing insanitary closets to those of modern type.” Factory now closed.

The following notice was received in addition by myself, and is now completed :—

LOGWOOD-STREET.—“ No sanitary accommodation.” Four water-closets and urinal have been provided in a satisfactory manner.

The following notices were outstanding at the end of the year 1905, and are still outstanding :—

CUMPSTEY-STREET.—Notice to provide five water-closets for females and two for males in place of the existing insanitary closets.

LOWER HOLLIN BANK-STREET.—“ To provide three additional water-closets and to reconstruct and convert the existing insanitary closets to those of modern type.”

WHALLEY NEW-ROAD.—“ To provide four additional water-closets and to reconstruct the existing closets.”

WHALLEY NEW-ROAD.—“ To reconstruct and to convert the existing insanitary closets.”

## NOTIFICATIONS FROM H.M. INSPECTOR OF FACTORIES WITH RESPECT TO WORKSHOPS.

WHALLEY RANGE.—“ Workshop appears to require lime-washing.” Notice was sent, and the work was carried out.

WHALLEY RANGE.—“ Bakehouse appears to require lime-washing.” Completed on receipt of notice.

BRIDGEWATER-STREET.—“ Bakehouse appears to require linewashing.” Completed on receipt of notice.

BALFOUR-STREET.—“ Bakehouse appears to require lime-washing.” Completed on receipt of notice.

QUEEN'S PARK-ROAD.—“ Bakehouse appears to require cleansing and linewashing.” Completed.

BACK GARNETT-STREET.—“ Both sexes are employed and separate sanitary conveniences are not provided, and the one now in use is dirty and has no water flush.” Separate accommodation for sexes was provided, the dirty pan cleansed, and flushing cistern repaired on receipt of notice.

SALFORD.—“ The workshop appears to require cleansing and linewashing. The w.c. is not provided with a supply of water for flushing purposes, and the closet pan is in an offensive state.” Notice was sent and the necessary work carried out, but no water supply was put to the water closet.

BANK TOP.—“ Workshop appears to require linewashing.” Notice was sent and the work was carried out.

EXCHANGE-STREET.—“ Both sexes employed and no sanitary convenience provided.” Occupier made arrangements with the Secretary of the Girls' Friendly Society for the use of the w.c. attached to their rooms.

ECCLES-STREET.—“Workshop appears to require limewashing.” Notice was sent and the requirements carried out.

MOOR-STREET.—“Workshop appears to require limewashing.” Notice was sent, and the work required carried out.

COPY NOOK.—“Workshop appears to require limewashing.” Notice was sent and the work required carried out.

SALFORD.—“Second notice.” Work carried out on receipt of notice as above.

ORDNANCE-STREET.—“Bakehouse appears to require limewashing.” Limewashed on receipt of notice.

WATER-STREET.—“No sanitary conveniences are provided.” Work was commenced on receipt of notice.

WATER-STREET.—“Second notification. No sanitary conveniences are yet provided. Previous complaint forwarded June 6th, 1907.” A water-closet was provided after some delay.

BROWN-STREET.—“Ceiling of bakehouse is in a dilapidated condition.” The dilapidated ceiling was knocked off and the whole of the bakehouse limewashed on receipt of notice.

PRESTON NEW-ROAD.—“One w.c. in a defective state, and is unfit for use.” Drain opened and cleansed and pan of w.c. cleansed on receipt of notice.

KING-STREET.—“Bakehouse appears to require limewashing.” Found completed on inspection. No notice sent.

NEW WELLINGTON-STREET, MILL HILL.—“Ceiling of workroom appears to require limewashing.” Notice was sent, but on second inspection the workshop was found to be unoccupied.

CHELTENHAM-STREET.—“ Sanitary conveniences not provided.” A pedestal wash-down water-closet was provided on receipt of notice.

PRESTON NEW-ROAD.—“ The tiling of bakehouse is incomplete, and parts untiled require linewashing or painting.” Not yet completed in spite of the tenant’s repeated promises.

HIGH-STREET.—“ Workroom does not appear to be sufficiently ventilated.” Notice was sent, and a hopper was provided to take away the fumes generated.

ALFRED-STREET.—“ Sanitary convenience not provided.” As the only person employed lives near at hand, it was arranged that he should use the sanitary convenience at his home. No notice was sent accordingly.

WHALLEY NEW-ROAD.—“ Workroom does not appear to be sufficiently ventilated.” Notice was sent, and the work is under consideration.

### UNDERGROUND ROOMS.

There are 51 underground workrooms in the Borough, including those used by bakers as compared with 47 in 1906.

### BAKEHOUSES.

There are 131 names on the Workshop Register as bakers, which include wholesale bakers, retail bakers, domestic retail bakers, and sugar boilers.

They occupy 157 rooms, of which seven are underground.

124 males and 164 females are employed in the baking industry of this town.

In 12 bakehouses both sexes are employed, showing an increase of two as compared with 1906.

22 notices have been issued with regard to insanitary conditions and defects.

### UNDERGROUND BAKEHOUSES.

There were 21 underground bakehouses in the Borough at the end of 1903, which, under Section 101 of the Factory and Workshop Act, 1901, were reduced to 12 during 1904, and which have been further reduced to six, consisting of seven rooms, at the end of 1906. No reductions have been made during the year 1907, the remaining six having been made satisfactory to the Sanitary Authority.

In use at the end of 1903 .....	21
Closed during 1904 .....	9
Closed during 1905 .....	5
Closed during 1906 .....	1
Closed during 1907 .....	0
	—
	15
	— 15
	—
In use at the end of 1907 .....	6

### LIGHTING OF WORKSHOPS.

The lighting of 574 workshops is over 1-70th of the total cubic space.

### WORKPLACES.

The term "Workplace" is not defined in the Act, but it includes any place where work is done permanently, and where people assemble together to do work permanently of some kind or other.



It also includes places where two or more persons meet regularly to perform some work, such work not being in the making, altering, repairing, ornamenting, finishing or adapting for sale of any article.

In connection with these places 352 visits have been made for the purpose of seeing that the provisions of the Factory and Workshop Act had been complied with and six notices were sent recommending the following 12 defects to be remedied :—

- 3 Rooms required limewashing.
- 4 Drains blocked.
- 2 Closets to be replaced.
- 1 General repairs.
- 1 Closet badly lighted and ventilated.
- 1 Closet dirty.

---

12

### FOOD-PREPARING PLACES.

Under this heading are included all pork butchers' shops and other places (not including workshops) in which meat pies, black puddings, sausages, potted meats, tongues, etc., are prepared for human consumption.

During the year 41 visits have been paid to these places, as compared with 47 in 1906.

### . RESTAURANTS.

The kitchens of restaurants, hotels, and dining-rooms are included in the definition of "Workplaces," which is a term used in the Factory and Workshop Act, 1901.

The power to inspect these places is given in the Public Health Act (Sections 2 and 47) and in the Factory and Workshop Act (Section 2).

The inspection of these places has been included in the visits to the food-preparing places.

### ICE-CREAM PLACES.

It would be an advantage if these places were subject to annual re-registration. Other remarks under this heading have appeared in my previous reports.

### MARINE-STORE DEALERS.

The improvement made last year and the year 1905 has apparently been maintained during the present year with regard to occupiers paying attention to the removal of bones before they became offensive.

Many of these bones are either collected or brought from local butchers, and include the heads of animals with portions of flesh attached.

They are sometimes stored in the premises for several days, and as they decompose cause a great nuisance, especially if the weather is hot and close.

The similar storage of filthy rags or other refuse upon the same premises adds to the nuisance.

Conditions such as these, together with the fact that the premises at present used are not altogether suitable, render the trade a difficult one to regulate efficiently.

In this connection also I would deprecate the custom of hawking salt which has been in contact with rags, etc., during the day and which is stored in unwholesome places at night. Much has been done to try and lessen the evil which may arise by requesting the dealers to store salt in a separate place from the rags, stones, etc., etc., and by informing the hawkers in the streets that they must provide and keep a covered box for the salt on the barrows or carts, so as to separate it from the rags, etc.

That part referring to hawkers will not be properly controlled until it is made compulsory to provide a suitable covered box in which to store their small quantity of salt.

Many of the marine storekeepers have been asked their opinion as regards the hawking of salt by the rag gatherers, and have stated that they do not encourage the trade, and would welcome any printed notice from the Medical Officer of Health forbidding the rag gatherers to carry salt on their conveyances.

I would again bring before your notice the opinion that it would be a great advantage if all marine-store dealers were subject to registration, and if bye-laws were made for regulating the duration of the licence.

Insanitary conditions on their premises could then be dealt with more effectually.

During the year it has been necessary to give notice to one marine store dealer to remove an accumulation of rubbish from premises vacated by him. Other notices issued are one for a blocked drain and another to provide sanitary accommodation.

I strongly recommend that all marine stores should be subject to Section 112 of the Public Health Act, i.e., that before a person can open a marine store he must obtain the written consent of the Council upon the recommendation of the Medical Officer of Health, such as applies to offensive trades.

#### OFFENSIVE TRADES.

There are 18 establishments in the Borough in which offensive trades are carried on. They are as follows:—

Tripe dressers .....	8
Fat melters .....	5
Gut scrapers .....	2
Bone boiler .....	1
Knackers .....	2
—	
	18

TABLE XLII.

1907.—NUISANCES REMEDIED.																																	
	Factories	Workplaces	Out Workers and Contractors	Tailors	Dressmakers	Milliners	Cloggers	Bootmakers	Curriers and Saddlers.	Cabinet Makers and Carvers	Joiners and Masons	Bakers, Confectioners and Sugar Boilers	Basket Makers	Black and White Smiths	Blind and Chair Makers	Brushmakers	Chemists and Photographers	Coopers and Coach-builders	Cotton Waste Sorters and Upholsterers	Scale Makers and Cycle Makers	Hosiery, Underclothing and Shirtmakers	Polishers and Picture Framers	Painters and Plumbers	Printers and Paper Bag Makers	Wireworkers and Tinner.	Wheelwrights	Offensive Trades and Marine Stores	Food Preparers	Greengrocers and Fishmongers	Fish & Chip Dealers	Miscellaneous	TOTALS	
Additional W.C.'s Provided .....	83				1			1						1												1						87	
Separate Sanitary Accommodation Provided for the Sexes .....				1																												1	
Defective W.C.'s Repaired, Re-placed, or Reconstructed.....	106	3										1																1				111	
Water Closets Lighted and Ventilated .....				1	2																											3	
Defective Connections and Fittings W.C. Flush Pipe to Pan, Repaired .....							3																		1							4	
Defective Urinals and Soil Pipes Repaired .....	16																				1											17	
Closets Cleansed, Pans Cleansed, Walls and Tops Limewashed .....	1			2					1	2		1		2						1	1					2						14	
Defective Drains (re-laid) .....	4									1										1		1										1	
Choked Drains (opened and cleansed) .....	1	4		1						2	1	2										1				1		3				5	
Defective Trap Gullies and Dish Stones Replaced .....	1																					1										16	
Defective Sink Waste Pipes Repaired (short).....	1						2	1																	1							2	
Defective Easing Troughs and Downspouts, Repaired .....	1							2								1					1									1		6	
Yards and Cellars Re-flagged .....																					1											4	
Inside Floors and Yards Badly Flagged or Paved, Repaired .....				1																												1	
Yards and Cellars Cleansed .....																														1		3	
Internal Walls and Ceilings of Rooms Limewashed .....		1		7				5	2	1		17		2		2						1					1					2	41
Internal Floors, Windows and Walls of Work Rooms Cleansed .....				2																													5
Number of Rooms Ventilated ..				3	1	1						2				2							1										7
General Repairs not Detailed.....	1			1			1			1		4																		1	1		10
Ash Receptacles Provided .....				2																											1		3
Accumulations of Refuse and other Debris Removed .....				1							1																				1		2
No. of Defects Found, 384 ; Remedied, 342 .....	215	5	3	22	4	1	6	9	3	7	2	27	0	5	0	5	0	0	0	1	2	3	1	0	5	2	4	0	0	4	6	342	



Notices were sent with respect to the following nuisances in connection with offensive trades :—To replace broken short hopper w.c. with pedestal wash down w.c. at a tripeworks ; also to open and cleanse the drain to w.c. at a tripeworks. Both nuisances were remedied forthwith.

## THE RECORD OF OUTWORKERS.

The necessary lists are not sent in at all regularly as required by law.

Full references have been made to this subject in my previous reports.

## FACTORY AND WORKSHOP ACT

(7 Edw. 7 ; Chap. 39).

This is an “ Act to amend the Factory and Workshop Act, 1901, with respect to the laundries, and to extend that Act to certain institutions and to provide for the inspection of certain premises.”

Section 1 applies the Act of 1901 to “ laundries carried on by way of trade or for the purposes of gain, or carried on as an auxiliary to another business, or incidentally to the purpose of any public institution.”

Section 2 regulates the hours of employment of women and young persons in laundries ; whilst Section 3 specifies certain special regulations to be complied with in laundries. Section 5 applies the Act to institutions carried on for charitable or reformatory purposes ; and Section 6 provides for Government inspection of laundry premises.

This Act came into operation on the 1st January, 1908.



TABLE XLIII.—SUMMARY OF VISITS DURING 1907.

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Factories.....	21	72	80	68	64	53		31	14	22	18	26	469
Workshops .....	26	41	32	13	25	7	...	155	203	141	279	134	1056
Workplaces .....	6	...	...	...	4	15	...	21	20	177	39	70	352
Outworkers .....	54	...	...	...	...	...		24	12		17	...	107
Offensive Trades .....	3	...	5	...	10	...		...	3		4	12	37
Complaints—Nuisances Investigated.....	3	6	...	...	3	9		3	14	9	17	20	84
Greengrocers.....	..	...	...	...	20	12		...	...	...	...	...	32
Food-preparing and Storing Places.....	...	...	5	1	27	...			8	...		...	41
Work in Progress.....	35	92	82	67	76	49		2	6	12	11	20	452
Drains Tested .....	3	15	8	14	29	17		1	4	4	3	3	101
Total .....	151	226	212	163	258	162		237	284	365	388	285	2731

Table XLIV.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
Particulars of Registers and Nuisances Found.	Factories.	Workplaces.	Outworks & Cisterns	Tailors.	Dressmakers.	Milliners.	Cloggers.	Bootmakers.	Curriers & Saddlers	Cabinet Makers and Carvers	Joiners & Masons	Bakers, Confectioners and Sugar Rollers.	Basketmakers	Black & White Smiths	Blind and Chaimakers	Brushmakers	Chemists and Photographers	Coopers and Coachbuilders	CottonWasteSorters and Upholsters	Scale Makers and Cycle Makers	Hostlers, Under-clothes, Shirtmakers	Polishers and Picture Framers.	Painters & Plumbers	Printers and Paper Bag Makers	Wiew k'rs & Timmers	Wheelpwrights	Offensive Trades and Marine Stores	Food Preparers	GreenGrocers and Fishmongers	Fish & Chip Potato Dealers.	Miscellaneous	Total.	
No. of Workshops on Register	...	...	95	77	127	46	88	89	12	39	44	131	4	26	6	14	8	7	9	9	8	43	13	32	5	15	11	23	9	...	...	33	1014
No. of Rooms	...	...	95	114	153	52	101	101	17	59	46	150	4	31	12	22	17	11	11	11	13	55	18	38	5	17	20	48	18	...	...	44	1272
No. of Underground Rooms	...	...	...	...	...	...	9	12	...	...	1	7	1	1	2	...	...	2	...	...	...	1	10	...	...	1	...	...	1	...	...	...	51
Avg No. of Males employed	...	...	62	297	84	470	152	178	41	151	144	124	16	93	15	49	26	23	18	21	7	36	66	3	55	50	83	22	...	...	...	82	1854
Avg No. of Females employed	...	...	68	84	470	152	...	2	...	3	...	164	...	...	7	2	18	...	4	...	173	...	...	24	...	...	...	7	3	...	...	35	1216
No. employing both sexes	...	...	16	37	92	26	24	2	...	1	...	13	...	...	1	2	4	...	2	...	...	...	...	2	...	...	...	5	...	...	...	3	91
No. of rooms badly lighted	...	...	...	49	92	3	...	39	2	33	27	63	2	19	8	11	7	8	...	...	4	32	12	17	4	8	11	34	8	...	...	29	575
No. of rooms badly ventilated	...	...	...	4	3	1	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
No. require lime-washing or cleansing	...	...	3	1	7	4	...	7	3	1	...	16	1	2	...	3	...	...	...	...	...	1	1	...	...	1	1	...	...	...	...	2	57
No. of dirty floors or windows	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
No. of yards and cellars dirty	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
No. of yards and floor surfaces in bad repair	1	...	...	1	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	7
No. of drains defective	4	...	...	...	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
No. of Drains blocked	1	4	...	1	...	...	...	...	...	2	1	2	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	2	...	...	...	...	15
No. of insufficient downspouts and defective drainage	1	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
No. of defective slop pipes	1	...	...	...	1	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
No. of defective gullies & dish stones.	1	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	6
No. of gullies & drains inside places...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1



## SUMMARY OF WORK REQUIRED AT FACTORIES.

TABLE XLV.

Notices issued during 1906 ; attended to during 1907.

Factory situated at	Additional conveniences required	Result		Existing insanitary closets	Converted to modern water-closet	Defective urinals	Replaced or repaired	No. sanitary conveniences to be disconnected from workroom	
		No. W.C.'s provided	No. not provided					Done	Not done
Quarry street .....	3	...	3	6 troughs	.	...	...	...	...
Stanley street .....	3	...	3	1 pan	...	...	...	...	...
Oak street... ..	1	...	5	4 pails	...	...	...	...	...
Ward street .....	6	6	...	...	6 peds.	...	..	...	...
Hollin Bank .....	5	5	...	6 troughs	11 peds.	...	...	...	...
Mary street .....	3	...	3	9 troughs	...	1	.	...	...
Cobden street .....	2	...	2	4 troughs	...	...	...	...	...
Simmons street ...		2	...	...	..	...	...	...	...
Witton .....	...	...	...	...	...	...	...	6	...
Eanam .. .....	2	...	2	6 troughs	...	1	...	...	...
Simmons street .....	...	..	...	...	...	...	..	...	...
High street .....	...	.	...	...	...	...	...	1	...
Greaves street .....	1	1	...	...	..	1	1	...	..
Paterson street .....	5	5	...	6 troughs	6 peds.	1	1	.	...
Grimshaw Park .....	...	..	...	...	...	..	.	...	...
Logwood street .....	1	1		3 pails	4 peds.	1	1	...	...
Eden street ... ..	2	...		11 troughs	9 peds.	1	1	...	...
Willow street .....	4	.	4	8 troughs	...	1		...	...
George street West...	6	6	...	5 troughs	11 peds.	1	1	...	...
Peel street (Livesey)	1	1	..	10 troughs	11 peds	1	1	...	...
Infirmay street .....	3	3	...	10 troughs 1 s. hop. 1 pail	13 peds.	1	1	...	..
Kent street .....	1	1	...	10 troughs	11 peds.	2	1		...
Foundry hill .....	..	...	..	3 troughs	...	1	...	...	...
23 Factories .....	49	31	22	104	82	13	8	7	

## SUMMARY OF WORK REQUIRED AT FACTORIES.

TABLE XLVI. — Notices Issued during 1907.

Inspection Book Folio 1907	Factory situated at	Additional Conveniences required	Result		Existing insanitary closets	Converted to modern water-closets	Defective urinals	Replaced or repaired	No. sanitary conveniences to be disconnected from workroom	
			No. W.C.'s provided	No. not provided					Done	Not done
15	Canterbury street ...	.	...	...	.	...	...	4	...	..
15	Whitebirk .....	...	...	...	...	...	...	..	...	...
15	Chadwick street ...	3	3	..	9 troughs	9 peds.	...	...	12	...
16	Brookhouse .....	...	...	...	...	...	...	...	...	...
16	Cobden street .....	...	..	...	1 s. hop. 3 l. hops.	...	...	...	...	3
16	Back Cort street .....	1	...	1	...	...	...	...	...	...
16	Do.	1	...	1	...	...	...	...	...	...
17	Do.	1	..	1	...	...	...	...	...	...
17	Hollin Bank .....	.	...	...	...	...	...	...	...	...
17	Forrest street .....	1	1	...	4 troughs 1 pan 1 w. out 1 w. down	8 peds.	...	...	1	...
17	Gate street .....	...	...	...	...	...	...	...	...	...
18	Moss street .....	4	...	4	4 privies 5 troughs	...	1	...	...	13
18	Cobden street .....	...	...	...	...	...	...	...	...	...
18	Highfield Road .....	2	2	...	5 pans, 5 troughs 4 privies	6 peds.	...	...	...	...
19	Bent Gap .....	1	2	...	1 pail	1 ped.	...	...	...	...
19	Weir street .....	...	...	...	...	...	1	1	...	...
19	Harwood street ...	2	...	2	2 s. hops.	...	...	...	...	...
19	Daisy street .....	2	...	2	6 pans	..	1	...	..	...
19	Boxwood street .....	..	...	...	6 pails	...	...	...	..	...
20	Kenyon street .....	...	...	...	...	...	...	...	...	...
20	Albert street .....	1	...	1	...	...	...	...	...	...
	21 Factories .....	19	8	12	58	24	3	5	13	16



TABLE XLVII.

*Copy of Table sent to the Home Office at the request of the Secretary of State.*

ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH FOR  
1907 for the County Borough of Blackburn.

Factories, Workshops, Laundries, Workplaces, and Homework.

1.—Inspection.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions
Factories .. .. . (including Factory Laundries)	469	21	...
Workshops ... .. (including Workshop Laundries)	1056	97	...
Workplaces ... .. (other than Outworkers' Premises included in Part 3 of this Table)	352		...
Total ... ..	1877	118	...

2.—Defects Found.

Particulars.	No. of defects.			No. of Prosec'tns
	Found	Remedied	Referred to H.M. Inspector	
<i>Nuisances under the Public Health Acts—</i>				
Want of cleanliness ... ..	48	44	...	...
Want of ventilation ... ..	8	5	...	...
Overcrowding ... ..	...	...	...	...
Want of drainage of floors ... ..	1	1	...	...
Other nuisances ... ..	37	17	...	...
Sanitary accommodation { insufficient ... ..	1907 { 34	16	...	...
{ unsuitable or defective ... ..		88	...	...
{ not separate for sexes ... ..		2	1	...
<i>Offences under the Factory and Workshop Act—</i>				
Illegal occupation of underground bakehouse... (S. 101) ... ..	...	...	...	...
Breach of special sanitary requirements for bakehouses (SS. 97 to 100) ... ..	...	...	...	...
Other offences... .. (Excluding offences relating to out work which are included in Part 3 of this Table)... ..	1	1	1	...
Total ... ..	263	173	1	...



TABLE XLVII.—*continued.*  
3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.							OUTWORK IN UNWHOLESOME PREMISES, SECTION, 108.				
	Lists received from Employers.				Addresses of Outworkers.			Inspections of Outworkers' premises.	Instances.	Notices served.	Prosecutions.	
	Twice in the year.		Once in the year.		Received from other Councils. 8	Forwarded to other Councils. 9						
	Lists	Outworkers. Con-tractors 3	Work-men 4	Lists.			Outworkers. Con-tractors 6					Work-men. 7
(1)	2			5					10	11	12	13
Wearing Apparel—												
(1) making, &c. . . . .	88	30	31	43	18	23	6	14	106	4	4	..
(2) cleaning and washing												
Paper Bags and Boxes .....		...	...	1		1	..	...	..	...	...	...
Total . . . . .	88	30	31	44	18	24	6	14	106	4	4	

TABLE XLVII.—*continued.*

## 4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year.....		
Important classes of workshops, such as workshop bakehouses, may be enumerated here.	Various Trades .....	797
	Workshop Bakehouses.. .....	59
	Not including the Domestic Retail Bakehouses (63) .	
Total number of Workshops on Register		919

## 5. OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (s. 133) .....	1
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory & Workshop Act (s. 5) )	49
Notified by H.M. Inspector	
Report (of action taken) sent to H.M. Inspector	48
Other .....	...
Underground Bakehouses (s. 101) :—	
Certificates granted during the year .....	
In use at the end of the year .....	6

## COTTON OPERATIVES' MORTALITY STATISTICS.

The following Tables show the death-rates amongst those persons engaged in the Cotton Industry of Blackburn for several years, 1889 to 1906, and also for the year 1907. The rates for the years 1893 to 1896 have been calculated from the 1891 census figures. The rates for the years 1897 to 1901 have been calculated from the 1901 census figures, including those operatives who were formerly in the cotton trade but who had retired.

The rates for the years 1902 to 1907 have been calculated from the 1901 census figures also, but with the addition of those cotton operatives who were included with the extension of the Borough in 1901.

The compilation of these statistics year by year is proving of great value in enabling one to draw certain conclusions based upon the observations of a considerable number of years. I devoted considerable space to this section in my Annual Report for 1906.

The age-periods in these Tables represent the five decades from 15 to 65 years, and the period "65 years and upwards."

The most useful figures are those given in the various decades from 15 to 65 years, since in the age-period "65 years and upwards" the number of deaths is large, owing to the inclusion of retired cotton operatives. This affects males more than females.

All the figures have been revised and corrected since the year 1889.

In the following figures the cotton operatives have been divided into these four groups:—

- I. Weavers.
- II. Spinners.
- III. Winders, Warpers, etc.
- IV. Cardroom-hands.

Also the deaths and death-rates have been calculated from three points of view, namely :—

- (a) Death-rates for 1907 compared with death-rates for the years 1889 to 1907.
- (b) Phthisis death-rates for 1907, compared with Phthisis death-rates for the years 1889 to 1907.
- (c) Death-rates from Other Respiratory Diseases for 1907, compared with the death-rates from Other Respiratory Diseases for the years 1889 to 1907.

In comparing Table LI. with Table LVII., it will be seen that the year 1907 represents a favourable record against the years 1889 to 1907.

The other Tables indicate that the improvement in death-rates from Phthisis and Other Respiratory Diseases amongst the Cotton Operatives of Blackburn is being maintained.

During the year 1907 the Home Secretary appointed a Departmental Committee to inquire into the subject of artificial humidity in cotton weaving factories.

The terms of reference to the Committee were to inquire and report upon the following :—

- (1) What temperature and humidity are necessary in each case for the manufacture of different classes of cotton fabrics.
- (2) At what degrees of heat and humidity combined definite bodily discomfort arises under the conditions of the work carried on by the operatives, and, what, if any, danger to health is involved by continuous work at those degrees.

- (3) What means of cooling humid sheds (where necessary) exists, whether combined with the means of humidifying or otherwise, which are both efficient and practicable, having regard to the conditions required for the manufacture of the several classes of goods.
- (4) What special arrangements, if any, are necessary in order to admit of the proper ventilation of dry weaving sheds, without prejudice to the process of manufacture.

I gave evidence before the above Committee, making use of statistics, previously prepared, respecting the death-rates for a number of years amongst cotton operatives, especially weavers.

TABLE XLVIII.—DEATHS OF MALE AND FEMALE WEAVERS FOR THE YEARS 1898—1907.

Age Periods.	1898		1899		1900		1901		1902		1903		1904		1905		1906		1907		TOTAL.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
15 to 25 .....	8	22	32	17	7	23	12	23	8	21	7	20	8	16	8	14	10	26	7	16	107	198
25 to 35 .....	10	16	11	20	10	23	7	25	12	10	9	18	2	12	9	19	6	15	9	11	85	169
35 to 45 .....	14	22	28	11	9	16	12	14	11	15	8	11	6	13	10	17	5	16	13	7	116	142
45 to 55 .....	18	7	24	4	15	4	7	6	13	10	14	6	14	11	9	7	11	12	16	11	141	78
55 to 65 .....	18	6	16	5	15	10	17	5	16	7	14	4	25	4	14	7	10	10	13	5	158	63
65 and upwards.	17	2	47	4	34	6	27	6	22	8	21	6	19	5	30	7	34	4	26	8	277	56



TABLE XLIX.—DEATH RATES OF MALE AND FEMALE WEAVERS FOR THE YEARS 1898—1907.

Age Periods.	1898		1899		1900		1901		1902		1903		1904		1905		1906		1907		Average Rate for 10 years.	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
15 to 25...	2.7	3.0	11.1	2.3	2.4	3.1	4.1	3.1	2.7	2.8	2.4	2.7	2.7	2.1	2.7	1.9	3.4	3.5	2.4	2.1	3.6	2.6
25 to 35...	5.5	3.7	6.0	4.6	5.5	5.3	3.8	5.7	6.5	2.2	4.9	4.1	1.0	2.7	4.9	4.3	3.2	3.4	4.9	2.5	4.6	3.8
35 to 45...	11.1	10.4	22.3	5.2	7.1	7.5	9.3	6.6	8.6	7.0	6.3	5.1	4.7	6.1	7.3	7.9	3.9	7.5	10.2	3.2	9.0	6.6
45 to 55...	25.7	9.9	34.3	5.6	21.4	5.6	10.0	8.4	18.3	14.2	19.7	8.4	19.7	15.4	12.7	9.8	15.5	16.9	22.6	15.5	19.9	10.9
55 to 65...	41.5	27.6	36.9	23.0	34.6	46.0	39.2	23.0	36.8	31.9	32.2	18.2	57.6	18.2	32.2	31.9	23.0	45.6	29.9	22.8	36.3	28.8
65 & upds.	92.3	20.0	255.4	40.0	184.7	60.0	146.7	60.0	119.5	80.0	114.1	60.0	103.2	50.0	163.1	70.0	184.7	40.0	141.3	80.0	150.5	56.0

The following rates have been worked from the 1901 Census figures, including the retired operatives and those operatives who came in with the extension of the Borough in 1901

**TABLE L.—DEATHS DURING 1907.**

Age Periods.	Weavers	Spinners.	Warpers, Winders, &c.	Card Room Hands	Borough.
15 to 25 .....	23	2	7	5	89
25 to 35.....	20	2	8	3	110
35 to 45.....	20	5	6	2	190
45 to 55 .....	27	9	2	1	236
55 to 65.....	18	8	8	2	311
65 and upwards ...	34	11	6	1	518
Total . . . . .	142	37	37	14	1454

**TABLE LI.—DEATH RATES for 1907.**

Age Periods.	Weavers.	Spinners.	Warpers, Winders, &c.	Card Room Hands	Borough.
15 to 25.....	2.2	3.0	2.8	7.7	3.3
25 to 35.....	3.2	4.8	4.7	6.9	5.1
35 to 45.....	5.8	9.5	5.5	4.4	10.9
45 to 55 .....	19.0	26.4	3.3	4.7	19.8
55 to 65.....	27.5	54.8	37.9	26.3	43.2
65 and upwards ...	119.7	130.9	64.5	23.8	122.5
All Ages over 15 Years .. .	6.4	17.1	6.0	7.5	16.3

TABLE LII.—PHTHISIS, 1907.  
DEATHS.

Age Periods.	Weavers.	Spinners.	Winders, Warper, &c.	Card Room Hands	Borough.
15 to 25.....	4	1	1	2	22
25 to 35.....	2	...	3	1	27
35 to 45.....	9	2	...	1	45
45 to 55.....	1	1	..	..	20
55 to 65.....	2	1	1	...	13
65 and upwards.....	...	...	...	...	1
Total.....	18	5	5	4	128

TABLE LIII.—DEATH RATES FOR 1907.

Age Periods.	Weavers.	Spinners.	Winders, Warper, &c.	Card Room Hands	Borough.
15 to 25.....	0·3	1·5	0·4	3·0	0·8
25 to 35.....	0·3	0·0	1·7	2·3	1·2
35 to 45.....	2·6	3·8	0·0	2·2	2·6
45 to 55.....	0·7	2·9	0·0	0·0	1·6
55 to 65.....	3·0	6·8	4·7	0·0	1·8
65 and upwards.....	0·0	0·0	0·0	0·0	0·2
All Ages over 15 years...	0·8	2·3	0·8	2·1	1·4

TABLE LIV.—RESPIRATORY DISEASES OTHER  
THAN PHTHISIS, 1907

## DEATHS.

Age Periods.	Weavers.	Spinners.	Winders, Warper, etc.	Card Room Hands.	Borough.
15 to 25 .....	1	0	0	0	8
25 to 35 .....	2	0	1	0	9
35 to 45 .....	3	0	0	1	30
45 to 55 .....	10	3	0	1	42
55 to 65 .....	4	3	0	2	87
65 and upwards .....	8	2	0	0	118
Total .....	28	8	1	4	294

TABLE LV. DEATH RATES for 1907.

Age Periods.	Weavers.	Spinners.	Winders, Warper, etc.	Card Room Hands.	Borough.
15 to 25 .....	0.09	0.0	0.0	0.0	0.2
25 to 35 .....	0.3	0.0	0.5	0.0	0.4
35 to 45 .....	0.8	0.0	0.0	2.2	1.7
45 to 55 .....	7.0	8.8	0.0	4.7	3.5
55 to 65 .....	6.1	20.5	0.0	26.3	12.0
65 and upwards .....	28.1	23.8	0.0	0.0	27.8
All ages over 15 years ...	1.2	3.6	0.1	2.0	3.3

**TABLE LVI.**—DEATHS from all causes from  
1889 to 1907.

Age Periods.	Weavers.	Spinners.	Winders, Warpers, &c.	Card Room Hands	Borough.
15 to 25.....	700	70	191	43	2102
25 to 35 .....	511	87	195	49	2518
35 to 45.....	501	101	165	67	3633
45 to 55 .....	378	139	153	67	4402
55 to 65.....	437	121	111	38	5567
65 & upwards.....	546	218	152	34	7972
Total .....	3073	736	967	298	26194

**TABLE LVII.**—AVERAGE DEATH RATES 1889 to 1907.

Age Periods.	Weavers.	Spinners.	Winders, Warpers, &c.	Card Room Hands	Borough.
15 to 25.....	3'6	5'6	4'1	3'4	4'1
25 to 35 .....	4'3	11'0	6'0	5'9	6'1
35 to 45.....	7'7	10'1	8'0	7'9	11'0
45 to 55.....	14'0	21'5	13'5	16'8	19'4
55 to 65 .....	35'2	43'6	27'6	26'3	40'7
65 & upwards.....	101'1	136'5	86'0	42'6	99'2
All Ages over 15 Years .....	7'3	17'9	8'3	8'4	15'5

TABLE LVIII.—PHTHISIS, 1889—1907.  
DEATHS.

Age Periods.	Weavers.	Spinners.	Winders, Warpers, &c.	Card Room Hands	Borough.
15 to 25.....	204	17	58	12	551
25 to 35.....	155	26	71	20	578
35 to 45.....	111	26	26	17	668
45 to 55.....	43	15	11	10	389
55 to 65.....	28	3	4	1	184
65 and upwards .....	3	2	3	0	41
Total .....	544	89	173	60	2411

TABLE LIX.—AVERAGE DEATH RATES,  
1889 to 1907.

Age Periods.	Weavers.	Spinners.	Winders, Warpers, &c.	Card Room Hands	Borough.
15 to 25.....	1'0	1'3	1'2	0'9	1'0
25 to 35.....	1'3	3'2	2'2	2'4	1'4
35 to 45.....	1'7	2'6	1'2	2'0	2'0
45 to 55 .....	1'6	2'3	0'9	2'5	1'7
55 to 65 .....	2'2	1'0	0'9	0'6	1'3
65 and upwards. ....	0'5	1'2	1'7	0'0	0'5
All Ages over 15 years	1'2	2 1	1'4	1'7	1'4



TABLE LX. RESPIRATORY DISEASES OTHER  
THAN PHTHISIS, 1889-1907.  
DEATHS.

Age Periods.	Weavers	Spinners	Winders, Warpers, etc.	Card Room Hands.	Borough
15 to 25.....	71	11	27	4	324
25 to 35.....	68	20	17	5	427
35 to 45.....	94	19	39	12	780
45 to 55.....	120	41	39	27	1207
55 to 65.....	148	50	30	10	1723
65 and upwards.....	134	58	38	13	2161
Total.....	635	199	190	71	6622

TABLE LXI.—AVERAGE DEATH RATES  
1889—1907.

Age Periods.	Weavers	Spinners	Winders, Warpers, etc.	Card Room Hands.	Borough
15 to 25.....	0.3	0.8	0.5	0.3	0.6
25 to 35.....	0.5	2.5	0.5	0.6	1.0
35 to 45.....	1.4	1.9	1.9	1.4	2.3
45 to 55.....	4.4	6.3	3.4	6.7	5.3
55 to 65.....	11.9	18.0	7.4	6.9	12.6
65 and upwards..	24.8	36.3	21.5	16.2	26.9
All ages over 15 years ...	1.5	4.8	1.6	2.0	3.9

## FEVER HOSPITAL.

The Fever Hospital is situated in Longshaw Lane, on an open site of  $10\frac{1}{2}$  acres, and at a height of 560 feet above sea level.

Full particulars appeared in my Annual Report for 1903 respecting cost, number of beds, buildings, etc.

The following Table gives an analysis of the number of cases admitted to the Fever Hospital during 1907, the number of deaths, and other details.

It will be observed that the average number of beds occupied was 54.7, which is 30.5 less than during 1906.

The average number of days occupied in the Hospital by the patients was 39.8, which is 1.3 less than for 1906.

There was a less case mortality from Scarlet Fever, and a greater case mortality from Enteric Fever during 1907, as compared with 1906.

The Hospital has maintained its reputation as a life-saving institution. Many cases recovered there who could not have been nursed successfully at their own homes.

The strain upon the Hospital has not been so heavy as it was during 1905 and 1906.

During the year the kitchen garden in the Hospital grounds has been enlarged. Also arrangements have been made to erect a hen-run, etc.

The usual repairs have been carried out where necessary. Disinfection of all the wards has been carried out at intervals.

Considerable additions have been made to the laundry machinery.

The Hospital staff have remained comparatively free from illness during the year.

I have again followed the plan initiated in my Annual Report for 1903, of giving a fuller description than had been included previously, of the cases treated in Hospital, dealing with each disease separately. Dr. Lawrence has assisted me in analysing the Register for this purpose.

TABLE LXII.—FEVER HOSPITAL.

Disease.	Patients remaining in hospital on January 1st, 1907.				Patients admitted and discharged in 1907.				Patients remaining in hospital on January 1st, 1908.				Analysis of cases admitted in 1907, including those admitted in 1907 and discharged in 1908.					Average % of Beds occupied during 1907.	Cases remov'd expressed as a percentage of total notified.
	Total	Recov-ered	Died.		Total	Recov-ered.	Died.		Total	Recov-ered.	Died.		Total	Recov-ered.	Died.	Case M'tality	Average days in Hospital		
Scarlet Fever ..	63	62	1		344	332	12		37	37	0		381	369	12	3.1	41.4	43.2	70.9 per cent
Enteric Fever...	9	7	2		25	19	6		3	3	0		28	22	6	21.4	37.3	2.8	57.3
Diphtheria.....	10	10	0		59	54	5		4	4	0		63	58	5	7.9	37.8	6.5	50.0
Other Diseases	0	0	0		28	26	2		2	2	0		30	28	2	6.6	26.3	2.1	
Totals	82	79	3		456	431	25		46	46	0		502	477	25	4.9	39.8	54.7	65.6

This Table includes 6 cases admitted from outside the Borough during 1907, and the percentages are worked out on the total number of admissions into Hospital.

## SCARLET FEVER.

The total number of cases admitted during the year as Scarlet Fever was 389. Of these, six were negative, leaving a total of 383. Of these 383 cases three were from districts outside the Borough.

The following complications or sequelæ occurred among the above patients :—

Complications.	No. of Cases.
Albuminuria .....	120
Otorrhœa .....	80
Rhinorrhœa .....	72
Excoriations of—	
Mouth .....	16
Nose .....	26
Ear .....	4
Lips .....	5
Cheek .....	1
Cervical adenitis—	
Suppurative . . . . .	13
Non-suppurative .....	71
Abscesses of—	
Buttock .....	1
Thigh .....	1
Scalp .....	3
Mastoid .....	1
Finger .....	1
Breast .....	1
Convalescent tonsillitis .....	11
Nephritis .....	18
Uraemia .....	1
Bronchitis .....	15
Broncho pneumonia .....	10
Lobar pneumonia .....	1

Epistaxis .....	4
Laryngitis .....	1
Haemoptysis .....	1
Rheumatism—	
Knee .....	5
Wrist .....	11
Elbow .....	4
Ankle .....	4
Shoulder .....	1
Endocarditis .....	2
Mitral regurgitation .....	1
Chorea .....	1
Conjunctivitis .....	8
Hordeum .....	3
Blepharitis .....	2
Tarsal cyst .....	1
Tinea .....	1
Impetigo .....	2
Herpes facialis .....	2
Furunculosis of external auditory meatus	1
Meningitis .....	1
Delirium .....	1

No cases of Scarlet Fever showed a relapse. Of the six negative cases of Scarlet Fever, four cases were of catarrhal tonsillitis, one was measles, and one was German measles.

#### WHOOPIING COUGH AMONGST SCARLET FEVER PATIENTS.

Two cases occurred :—

(1) No. 80. F.  $2\frac{3}{4}$  years. Admitted February 15th. Discharged March 22nd. Cough on March 2nd characterised by series of expiratory efforts, but not followed by a whoop. The cough had been suspicious for several days previously. She was isolated, and no more cases occurred.



(2) No. 320. F., 3 $\frac{3}{4}$  years. Admitted August 28th. "Whooped" occasionally from October 3rd. Whooping never quite definite. Was isolated. No other cases occurred.

#### **Measles amongst Scarlet Fever Patients.**

Four Scarlet Fever patients developed measles during 1907. The disease was introduced twice into the wards. On each occasion by carefully watching those "contacts" who were not immune against measles by reason of a previous attack, the infection was limited to one in each case.

*First Introduction.*—No. 211. M., 4 years. Admitted June 4th. Had a rise of temperature on June 14th and a rash on the 15th. Was transferred to the receiving ward of Ward 1. At the time of appearance of his rash he was in contact with No. 213, a Male, 2 $\frac{1}{4}$  years, who developed measles on June 25th. Both patients recovered.

*Second Introduction.*—No. 236. F., 5 years. Was admitted with a scarlatini-form rash. She was in the receiving ward with No. 237, M., 2 $\frac{1}{2}$  years. On the day after admission, No. 236 developed measles. She was in contact with one patient, No. 237, who had not had measles. The latter was isolated during the next fortnight. He developed coryza on July 3rd and a morbilliform rash on July 4th.

One patient, No. 260. M., 4 years, sent in as scarlet fever, had measles. He had not had measles previously. On admission he had a rash which was scarlatiniform in type but of unusual distribution. It was present on the face and behind the ears. He was isolated from the beginning, and two days later the rash was distinctly morbilliform everywhere.

#### **Mumps amongst Scarlet Fever Patients.**

(1) One patient, No. 22, was sent in as "Scarlet Fever and Mumps." She had nephritis, dropsy, discharging ear (left), and a swelling on the left side, which was not definitely due to enlargement of the parotid gland, but possibly to an enlarged cervical gland.

(2) F., 1½, admitted in 1906. Had a rise of temperature and swelling and pain in the left parotid gland.

#### Post Scarlatinal Diphtheria.

Sixteen Scarlet Fever patients became infected with Diphtheria. Of these, three had Faucial Diphtheria and 13 had Nasal Diphtheria.

#### Cases of Faucial Diphtheria :—

No. of Case.	No. in Register	Admitted.	Onset of Diphtheria.	Type of Scarlet Fever.	Complications of Scarlet Fever.	Days in Ho-pital
(1)	16	Jan. 7th.	March 3rd 55 days after admission.	Moderately Severe.	Nephritis Otitis.	89
(2)	147	April 8th.	April 29th 21 days after admission.	Mild.	—	43
(3)	173	April 27th.	April 29th 2 days after admission.	Mild.	—	26

#### Cases of Nasal Diphtheria :—

TABLE LXIII.—CASES OF NASAL DIPHTHERIA.

No. of Case.	No. in Register Admission.	Date of Admission.	Days ill before admission.	Date of appearance of Nasal Diphtheria	Nasal Discharge	Nose.	Constitutional Symptoms	Type of Scarlet Fever.	Complications of Scarlet Fever.	No. of Days in Hospital.
1	42	Jan. 21st.	6	8 days	Blood-stained Purulent	Excoriated	None.	Mild	Otorrhœa.	53
2	43	Jan. 21st.	2	8 "	Purulent	"	"	"	Cervical Adenitis	65
3	98	Feb. 24th.	4	21 "	Purulent	"	"	"	"	46
4	99	Feb. 24th.	1	21 "	Purulent	"	"	Moderate.	Double Otorrhœa	65
5	77	Feb. 14th.	1	34 "	Purulent	Nil	"	Mild	Nephritis.	51
6	122	Mar. 15th.	4	20 "	Purulent	"	Fever.	"	Cervical Adenitis	60
7	74	Feb. 12th.	3	51 "	Purulent	"	None.	Severe	Double Otorrhœa	75
8	136	Mar. 27th.	3	18 "	Purulent	Excoriated	"	Mild	None	34
9	128	Mar. 20th.	3	37 "	Watery	"	"	Moderate	Cervical Adenitis	41
10	142	April 3rd.	3	32 "	Watery	"	"	Mild	Rhinitis	51
11	150	April 9th.	3	31 "	Purulent	"	"	Severe	Rhinitis. Otorrhœa	59
12	422	Nov. 6th.	2	33 "	Blood-stained	"	"	Mild	None	97
13	429	Nov. 8th.	2	37 "	Blood-stained	"	"	Moderate	Cervical Adenitis	95

The cases of Nasal Diphtheria were all characterised by nasal discharge—mostly purulent and occasionally blood-stained, which caused reddening and excoriation of the nose and lip. The nasal discharge often appears suddenly. It may be from one nostril only. It is not accompanied by any constitutional symptoms, and none of the 16 cases occurring in 1907 was followed by paralysis of any kind. It was diagnosed by bacteriological examination only.

**Cases of Scarlet Fever and Diphtheria occurring concurrently but certified as Scarlet Fever.**

(1) No. 94. M., 21. Admitted February 22nd, with well-marked rash and deeply congested throat. The disease ran a severe course, the temperature never settling until after six weeks. A throat swab taken on the fourth day after admission was negative. A throat swab taken on the fourteenth day after admission was positive. The scarlet fever was complicated by nephritis and cervical adenitis.

(2) No. 111. M., 10 years. Admitted March 5th with a well-marked scarlatiniform rash, congested throat with whitish exudate on the tonsils. Throat swab showed the presence of diphtheria bacilli. The bacilli were still present in the throat on April 13th. The patient desquamated in typical fashion.

**Return Cases of Scarlet Fever.**

Sixteen return cases occurred.

“Return Cases” is a term employed to indicate the re-appearance of Scarlet Fever infection in a household within one month after the return home of a Scarlet Fever patient from the Hospital.

The following are particulars of the 16 return cases of Scarlet Fever occurring in 1907. The periods between the first case returning home and the second case occurring were:—

Period.	No. of Cases.
2 days .....	1
4 „ .....	2
5 „ .....	3
6 „ .....	1
7 „ .....	2
8 „ .....	1
9 „ .....	1
10 „ .....	2
11 „ .....	1
12 „ .....	1
19 „ .....	1

Fuller details of the circumstances under which infection of each return case occurred are given in the following table :—

TABLE LXIV.—RETURN CASES OF SCARLET FEVER (Hospital Treated).

INFECTING CASE.						INFECTED CASE.						
Case No.	No. in Register	Description.	Date of Ad- mission.	Date of Dis- charge.	Days in Hos- pital	Complications.	Case No.	No. in Register	Description.	Date of Onset.	Date of Ad- mission.	Days' Interval
1	54	male, 5 years	Jan. 30	Mch. 5	34	none	1	136	male, 10 years	Mch. 24	Mch. 27	19
2	100	female, 7 years	Feb. 26	Apl. 9	42	Nephritis	2	159	male, 6 years	Apl. 15	Apl. 17	7
3	92	female, 3½ years	Feb. 21	May 3	70	Otorrhœa	3	189	male, 5 years	May 12	May 15	9
4	160	female, 5 years	Apl. 17	May 14	28	Bronchitis, Ex- coriated Mouth	4	194	female, 8 years	May 16	May 18	2
5	160	female, 5 years	Apl. 17	May 14	28	Bronchitis, Ex- coriated Mouth	5	201	female, 2½ years	May 22	May 23	8
6	159	male, 6 years	Apl. 17	May 24	35	none	6	218	male, 5 years	june 4	june 7	11
7	172	female, 8 years	Apl. 27	june 18	52	none	7	243	female, 5 years	june 23	june 24	5
8	195	male, 6 years	May 19	june 18	31	none	8	...	male, 8 years	june 23	...	5
9	195	male, 6 years	May 19	june 18	31	none	9	...	male, 2 years	june 23	...	5



TABLE LXIV.—RETURN CASES OF SCARLET FEVER (Hospital Treated). continued.

INFECTING CASE.							INFECTED CASE.					
Case No.	No. in Register	Description.	Date of Admission.	Date of Discharge.	Days in Hospital.	Complications.	Case No.	No. in Register	Description.	Date of Onset.	Date of Admission.	Days' Interval.
10	281	male, 6 years	July 19	Sept. 6	49	Left Otorrhœa	8	344	male, 5½ years	Sept. 12	Sept. 13	6
11	254	female, 6 years	July 3	Aug. 16	44	Excoriated Mouth	9	320	female, 3¾ years	Aug. 28	Aug. 28	12
12	269	male, 3½ years	July 12	Sept. 10	60	Otorrhœa, Excoriated Mouth	10	358	male, 5 years	Sept. 17	Sept. 19	7
13	341	male, 4 years	Sept. 11	Oct. 25	44	Bronchitis, Rhinitis	11	412	female, 6 years	Oct. 29	Oct. 30	4
14	395	female, 4½ years	Oct. 21	Nov. 26	36	none	12	468	male, 5½ years	Nov. 30	Dec. 2	4
15	395	female, 4½ years	Oct. 21	Nov. 26	36	none	13	472	male, 2 years	Dec. 6	Dec. 6	10
16	393	male, 5 years	Oct. 19	Nov. 29	34	none	14	480	male, 6 years	Dec. 9	Dec. 12	10

Remarks on the above "Return Cases" of Scarlet Fever.

Case 1.—No. 54. The patient, a male, five years, went home after a stay of 34 days in Hospital. Illness, uneventful, desquamation was complete. The youngest of a family of six, two of whom have had scarlet fever. He did not sleep with the infected patient. No discharges from ears or nose occurred after his return home.

Case 2.—No. 100. Female, seven years. Was in Hospital 42 days. Illness complicated by nephritis. Recovery complete. Discharged from "Convalescent Ward." A week after return home her mouth became excoriated, and about this time the "infected case" became ill. The two did not sleep together, but met in living room and at play. Ten others besides the "Infecting Case" lived in the same house, and none of these have had scarlet fever. Three bedrooms at this house.

Case 3.—No. 92. Female,  $3\frac{1}{2}$ . In Hospital for 70 days. Illness complicated by Otorrhœa, which had disappeared by the time she was discharged. Four days after return home she had slight nasal discharge, and four days after the appearance of this the "Infected Case" became ill. The two slept together. One other child in house,  $1\frac{3}{4}$  years old, has not had scarlet fever.

Case 4.—No. 160. Female, five years. Was in Hospital for 28 days. She had a little eczema about the mouth, but this was absent when she was discharged. Purulent nasal discharge appeared two days after she was discharged, and on the same day the "Infected Case" became ill. The two did not sleep together, but met in living room.

Case 5.—Infected by No. 160, six days after the previous return case was infected.

Case 6.—No. 159. Male, six years. Was in Hospital 35 days. His illness was free from complications. He did

not sleep with the "Infected Case," but they met in the living room and played together. There were eight other persons in the same house who had not had scarlet fever.

Case 7.—No. 172. Female, eight years. Was in Hospital for 52 days. She had no complications, and remained free from complications while at home. She slept with the "Infected Case."

Cases 8 and 9.—R. B. and A. B., eight and two years respectively. The brother, T. B., male, six years, was in Hospital from May 19th to June 18th. He had no complication while in Hospital. A slight sore at the angle of the mouth occurred after discharge. The two patients, R. B. and A. B., were infected, the onset of their illness occurring five days after the return home of T. B.

Case 10.—No. 291. M., six. Was in Hospital for 49 days. He had ear discharge while in Hospital, but it had ceased before he was sent home. He played with the "Infected Case."

Case 11.—No. 254. Female, six years. Was in Hospital for 44 days. No complications except an eczematous condition about the mouth. This had disappeared at the date of discharge from Hospital. A few days after her arrival at home she had a cracked ear, impetigo on chin, and slight nasal discharge. The "Infected Case," her sister, did not live at the same house, though they played together.

Case 12.—No. 269. Male,  $3\frac{3}{4}$  years. Was in Hospital 60 days. He had left otorrhœa and an excoriated mouth. Both complications were absent at time of discharge. Two days after arrival home the left ear began discharging, and subsequently the right. He had had ear discharge before he had scarlet fever. The "Infected Case" is said to have been ill a fortnight before going to Hospital and a week before the "Infecting Case" arrived home, but the history was not very reliable.

Case 13.—No. 341. Male, four years. Was in Hospital 44 days. He had bronchitis and rhinitis. At the time of discharge he had a little redness along the edges of the eyelids, but no nasal discharge. No discharges appeared after his arrival at home. He slept in the same room as the “Infected Case.”

Case 14.—No. 395. Female,  $4\frac{1}{2}$  years. Was in Hospital 36 days. She had no complications. Three days after going home she had nasal discharge. The infecting and infected patients slept and played together.

Case 15.—Same infecting case as above. Infected case—a male, two years, with whom the infecting case played.

Case 16.—No. 393. Male, five years. Was in Hospital for 34 days. No complications while in Hospital. Nasal discharge began two days after return home. Slept alone for a week and then with “Infected Case.” Another brother from the same house went into the Hospital while the “Infecting Case” was still there.

All the patients who gave rise to “Return Cases” were discharged from the Convalescent Ward. They were bathed in a solution of Izal and had their noses and ears syringed, and after this their clothes, which had been disinfected, were returned to them.

#### **Return Cases of Scarlet Fever treated at Home.**

Cases 1 and 2.—H. T., male, five years. Was ill on October 3rd. Isolation was begun on October 6th, and the two “Infected Cases” were sent away. Isolation ceased on October 31st, after which the “Infected Cases” returned home. The infecting case had had otorrhœa, but this had ceased before the isolation was discontinued. The ear discharge began again during the first week in November. The “Infecting Case” and the “Infected Cases” met in the living room.

II. *Secondary cases occurring in a house from which the first case was removed to Hospital, but which occurred before discharge from Hospital.*

There were 23 of these during the year.

The periods between the onset of the first case and onset of the second were:—

Period.	Number of Cases.
Less than 1 day .....	2
1 .. ..	3
2 .. ..	3
3 „ ..	3
4 „ ..	1
5 „ ..	1
6 .. ..	1
9 .. ..	2
10 „ ..	1
29 „ ..	1
36 „ ..	1
41 .. ..	1
78 „ ..	1
92 „ ..	1
96 „ ..	1

Table LXV.—Secondary Cases of Scarlet Fever occurring while the first case was in Hospital.

INFECTING CASE.				INFECTED CASE.				Interval in days.
Case Number.	Description.	Date of Onset	Date of Admission.	Case Number.	Description.	Date of Onset.	Date of Admission.	
1	R.B., male, 2 years	Jan. 1st	Jan. 3rd	1	A.B., female, 6 years	Jan. 5th	Jan. 7th	2
2	J.G., male, 5 years	Dec. 31st	Jan. 2nd	2	G.G., female, 4 years	Jan. 12th	Jan. 13th	10
3	T.L., female, 6 years	Jan. 20th	Jan. 22nd	3	T.L., male, 3 years	Jan. 24th	Jan. 25th	2
4	W.H., male, 7 years	Jan. 18th	Feb. 16th	4	B.H., female, 3 years	Feb. 15th	Feb. 16th	...
5	F.L., male, 3 years	Jan. 24th	Jan. 25th	5	J.L., male, 11 years	Feb. 3rd	Feb. 20th	9
6	W.C., male, 4½ years	March 11th	March 15th	6	M.A.C., female, 7 years	March 17th	March 20th	2
7	W.C., male, 4½ years	March 11th	March 15th	7	B.C., female, 5 years	March 16th	March 20th	1
8	C.B., female, 7 years	Jan. 17th	Jan. 19th	8	J.B., male, 15 years	April 5th	April 6th	78
9	N.P., female, 13 years	Dec. 31st	Jan. 2nd	9	F.P., female, 7 years	April 7th	April 8th	96
10	J.H., male, 9 years	April 5th	April 6th	10	A.H., female, 17 years	April 8th	.....	3
11	A.A., female, 15 years	Jan. 11th	Jan. 14th	11	T.N.A., male, 11 years	April 17th	April 23rd	92
12	T.N.A., male, 11 years	April 17th	April 23rd	12	M.A.A., female, 18 years	April 22nd	April 23rd	5



Table LXV.—Secondary Cases of Scarlet Fever occurring while the first case was in Hospital (continued)

INFECTING CASE.				INFECTED CASE.				Interval in days.
Case Number.	Description.	Date of Onset.	Date of Admission.	Case Number.	Description.	Date of Onset.	Date of Admission.	
13	M.J.K., female, 4 years	March 31st	April 2nd	13	C.K., female, 2½ years	April 6th	.....	4
14	W.G., male, 6 years	May 30th	May 30th	14	M.G., female, 3½ years	June 2nd	June 2nd	3
15	M.C., female, 9 years	April 19th	May 4th	15	F.C., male, 8 years	June 2nd	June 5th	29
16	F.C., male, 2½ years	June 5th	June 5th	16	M.C., female, 1½ years	June 11th	.....	6
17	W.B., male, 4 years	May 18th	May 20th	17	A.B., female, 8 years	May 21st	...	1
18	L.G., female, 8 years	June 10th	June 11th	18	M.G., female, 6½ years	June 12th	June 12th	1
19	M.M., female, 14 years	June 9th	June 10th	19	E.M., female, 36 years	June 13th	June 14th	3
20	J.N., male, 12 years	June 10th	June 10th	20	T.N., male, 8 years	July 16th	July 16th	36
21	E.D., female, 19 years	June 4th	June 20th	21	S.H., female, 4 years	Aug. 10th	Aug. 12th	41
22	J.G., female, 2 years	Aug. 15th	Aug. 18th	22	L.G., female, 23 years	Aug. 17th	Aug. 18th	...
23	L.S., female, 6 years	Aug. 11th	Aug. 14th	23	E.S., female, 8 years	Aug. 23rd	Aug. 23rd	9

III. *Secondary cases of Scarlet Fever occurring in a house in which the first case was nursed at home.*

Six of these cases occurred during the year.

The periods respectively between the onset of the first case and the onset of the second case were :—

Period.	Number of Cases.
7 days .....	1
18 ,, .....	1
22 ,, .....	1
30 ,, .....	1
37 ,, ..	1
134 ,, .....	1

TABLE LXVI.

Monthly Admissions of Scarlet Fever Cases to Fever  
Hospital during 1907.

Month.	Total Number of Scarlet Fever Cases Notified.	Scarlet Fever Removals.	Percentages of Removals of S. F.
January.....	60	40	66·6
February .....	41	31	75·6
March .....	36	22	61·1
April .....	44	27	61·2
May .....	41	26	63·4
June .....	48	36	75·0
July .....	52	40	76·
August .....	30	21	70·0
September .....	44	37	84·0
October .....	49	36	73·4
November.. .....	55	43	78·1
December.....	44	27	61·3
Totals.....	544	386	70·9

TABLE LXVII.

The following table shows the percentage of Scarlet Fever removals in wards during 1907.

Wards.	Percentages.
St. Stephen's .....	68·6
Trinity .....	57·5
St. Michael's .....	78·9
St. John's.....	73·7
St. Silas's.....	60·6
St. Paul's.....	61·9
St. Peter's .....	85·0
St. Mary's .....	87·5
St. Matthew's ... ..	75·0
St. Thomas's .....	76·3
Park .....	70·8
St. Luke's.....	64·7
St. Mark's ... ..	66·6
St. Andrew's .....	57·1

## ENTERIC FEVER OR TYPHOID FEVER.

The total number of cases admitted to the Hospital certified as Enteric Fever was 36. Eight of these were negative, leaving 28 true cases.

The negative cases were:—

Diarrhœa .....	3
Bronchitis .....	2
Colic .....	1
Pneumonia .....	1
Broncho-pneumonia .....	1

Six deaths occurred out of the 28 cases, giving a mortality of 21.4 per cent.

One of the negative cases, a case of Lobar Pneumonia, died.

The following complications and sequelæ occurred:—

Bronchitis .....	in 7 cases.
Pneumonia .....	„ 5 „
Otorrhœa .....	„ 5 „
Broncho-pneumonia .....	„ 4 „
Diarrhœa .....	„ 3 „
Temporary deafness .....	„ 2 „
Delirium .....	„ 2 „
Pleurisy .....	„ 1 „
Phlebitis .....	„ 1 „
Intestinal hæmorrhage .....	„ 1 „
Abscess—	
Shoulder .....	„ 1 „
Hand .....	„ 1 „
Scalp .....	„ 1 „
Tonsillitis .....	„ 1 „
Conjunctivitis .....	„ 1 „
Periostitis .....	„ 1 „
Phthisis .....	„ 1 „

Two cases had one relapse, and one case had two relapses.

In consequence of the small number of cases of Typhoid Fever treated in Hospital during the year, the corresponding pavilion was closed for several weeks.

TABLE LXVIII.

The following table shows the percentage of Enteric Fever removals in Wards during 1907.

Ward.	Percentages.
St. Stephen's .....	66·6
Trinity ... ..	66·6
St. Michael's .....	75·0
St John's ... ..	0·0
St Silas's .....	0·0
St. Paul's ... ..	50·0
St. Peter's .....	100·0
St Mary's ... ..	25·0
St Matthew's ... ..	50·0
St. Thomas's .. ..	30·0
Park .....	33·3
St. Luke's ... ..	100·0
St Mark's .....	75·0
St. Andrew's .....	87·5



TABLE LXIX.

Showing cases of Scarlet Fever and Typhoid Fever removed to Hospital expressed at a percentage of the cases notified :—

Year.	Scarlet Fever.	Enteric Fever.
1895	56.0	45.4
1896	63.0	53.8
1897	61.0	51.4
1898	50.0	43.0
1899	47.0	54.0
1900	26.0	43.5
1901	26.7	59.5
1902	56.4	62.2
1903	69.0	60.8
1904	72.2	70.2
1905	71.6	62.2
1906	73.3	73.1
1907	70.9	57.3

## DIPHTHERIA.

Seventy-six cases were admitted to the Hospital certified as Diphtheria. Of these 13 were negative cases, as follows :—

Scarlet Fever	8
Follicular Tonsillitis	5

Among the 63 cases of Diphtheria five deaths occurred. The cause of death in each case was heart failure.

The following complications and sequelæ occurred :—

Antitoxin rash	in 20 cases.
Cardiac dilatation	„ 14 „
Rhinitis	„ 8 „
Cervical adenitis	„ 6 „

Paralysis—			
Palate	.....	6	„
Eye muscles	.....	4	„
Laryngitis	.....	5	„
Otorrhœa	.....	4	„
Excoriations—			
Mouth	.....	3	„
Nose	.....	1	„
Abscess—			
Finger	.....	1	„
Neck	.....	1	„
Bronchitis	.....	2	„
Epistaxis	.....	1	„
Pneumonia	.....	1	„

The cases of Post Scarlatinal Diphtheria and of Scarlet Fever and Diphtheria occurring simultaneously in one patient, are mentioned in the section on Scarlet Fever.

Scarlet Fever occurred among Diphtheria patients owing to the admission to the Diphtheria Ward of Scarlet Fever patients, certified as Diphtheria.

Case 1.—R. E., male, 17 years. Admitted on December 21st, 1906, to the Diphtheria Ward. Had a rash on the day following admission, and on January 15th he was found to be desquamating in large flakes on the hands and feet. There was no doubt about his having Diphtheria. He subsequently had paralysis of the palate, pharynx, and external ocular muscles, and had peripheral neuritis. He was isolated as soon as he was found to be desquamating.

Case 2.—No. 25. Male, 10 years. Admitted January 12th. On January 19th the skin on the chest, hands and feet was thought to be rather rough. He got up on January 13th and sat on the couch with Case 3. By February 8th the roughening skin was considered to be definite desquamation due to Scarlet Fever. He was isolated.

Case 3.—No. 6. Male, five years. Admitted on January 3rd. Throat swab positive. He had ocular paralysis. On February 1st he got up and sat on the couch with Case 2. On February 6th he vomited, and on February 7th he developed a scarlatiniform rash. He was isolated with Case 2.

Case 4.—No. 57. Male, five years. Was admitted on February 1st. He had been up for a week, when he developed a scarlatiniform rash (February 26th).

Case 5.—No. 82. Male,  $6\frac{3}{4}$  years. Admitted on February 16th. On March 1st, before he had been up, he developed a scarlatiniform rash.

Case 6.—No. 75. Female, 17 years. Admitted on February 14th. She had a small patch of exudate on the right tonsil. Her face was flushed, but she had no rash. Throat swabs taken on February 13th, and February 15th were negative. On February 28th, a fortnight after admission, she was found to be desquamating on the fingers and toes. She had then been up for three days. On March 1st she was isolated.

Case 7.—No. 61. Male,  $2\frac{3}{4}$  years. Admitted on February 6th. Swab positive. He developed a rash on March 3rd. He had been infected by Case 6, who had been up in the Ward from February 25th to February 28th.

Case 8.—No. 115. Male, 11 years. Admitted on March 12th. Developed a scarlatiniform rash on the chest on March 13th. This was thought to be due to the antitoxin, especially as on the shoulders it was urticarial. On March 30th desquamation had begun. He was isolated.

Case 9.—No. 134. Male,  $8\frac{1}{2}$  years. Was admitted on March 27th. His throat swab contained diphtheria bacilli. On admission the skin on his chest was dry and rough. On March 30th he was isolated, and by April 5th his hands and feet were desquamating freely.

Case 10.—No. 135. Female, eight years. Was admitted March 27th. Throat swab, taken on March 25th, was positive. On April 6th she had earache, and on April 8th she was found to be desquamating.

Case 11.—No. 306. Female,  $5\frac{1}{2}$  years. Admitted on August 9th, developed scarlet fever on September 9th, probably contracted from one of two cases, No. 289 and No. 307, patients notified and admitted as Diphtheria, but in reality suffering from Scarlet Fever.

Case 12.—No. 463. Male, 21 years. Admitted on November 25th. Was noticed to be desquamating on admission. He also had undoubted Diphtheria.

All these patients recovered.

Scarlet Fever was introduced into the Diphtheria Ward on seven occasions. On the first, no one was infected.

On the second—Case 2—three were infected. The Ward was then closed and disinfected, the opposite side of the Ward being used for those cases who had had Scarlet Fever previously, or, not having had it, had not been in the Ward where Scarlet Fever had broken out.

The third time Scarlet Fever was introduced was by Case 6, and she infected Case 7. No fresh patients were admitted to this side of the Ward until all the patients from this side had been discharged, and in the meantime the opposite side, which had been disinfected after the occurrence of Cases 3, 4 and 5, was used for receiving new cases of Diphtheria.

On the fourth occasion Scarlet Fever was introduced by Case 8, who had been infected before admission, and developed a rash on the day after admission. No patient was infected.

On the fifth occasion it was introduced by Cases 9 and 10, who were admitted on the same day. These cases were probably cases of Post Scarlatinal Diphtheria, where the Scarlet Fever had been overlooked.

On the sixth occasion it was introduced by patients No. 289 and 307, who had Scarlet Fever but not Diphtheria. They infected Case 11.

The seventh introduction was by Case 12, who had had Scarlet Fever unrecognised and was suffering from Post Scarlatinal Diphtheria.

TABLE LXX.

The following Table shows the percentage of Diphtheria removals in Wards during 1907.

Wards	Percentages
St Stephen's .....	71·4
Trinity .....	61·5
St. Michael's ... ..	50·0
St. John's .....	39·1
St. Silas's .....	20·0
St. Paul's .....	50·0
St. Peter's .....	0·0
St Mary's .....	66·6
St. Matthew's .....	60 0
St. Thomas's .....	66·6
Park .....	60·0
St. Luke's .....	40·0
St. Mark's .....	60·0
St. Andrew's .....	60·0



TABLE LXXI.—Deaths in the Hospital during 1907.

No.	Date.	Name.	Age.	Length of Illness	Cause of Death.
				Days.	
1	Jan. 7	T.H.	39 years	14	Enteric Fever. Exhaustion.
2	„ 8	E.F.	33 „	7	Enteric Fever. Exhaustion.
3	„ 12	F.S.	2 „	30	Scarlet Fever. Whooping Cough. Broncho-pneumonia.
4	„ 23	J.H.W.	4 „	7	Scarlet Fever. Broncho- pneumonia.
5	Feb. 23	E.B.	4 „	3	Scarlet Fever. Exhaustion
6	„ 26	E.K.	3 „	15	Scarlet Fever. Broncho. pneumonia.
7	Mar. 16	L.R.	4 „	30	Scarlet Fever. Nephritis.
8	„ 17	L.G.	4 „	4	Diphtheria. Heart Failure.
9	Apl. 13	E.M.	6½ „	3	Diphtheria. Heart Failure.
10	May 1	R.A.E.	43 „	1	Pneumonia. Heart Failure.
11	„ 31	O.S.	2¾ „	8	Scarlet Fever. Exhaustion.
12	June 17	J.M.R.	47 „	10	Scarlet Fever. Heart Failure.
13	„ 27	E.N.	5 „	10	Scarlet Fever. Rhinitis. Exhaustion.
14	„ 28	A.T.	6 „	25	Scarlet Fever. Tubercu- losis of Lungs. Hæmorrhage.
15	July 15	A.R.	1¾ „	1	Diphtheria. Exhaustion.
16	„ 16	J.J.H.	4 „	11	Scarlet Fever. Broncho- pneumonia.
17	Aug. 2	D.S.	6 „	1	Enteric Fever. Exhaustion.
18	Sep. 21	H.P.	4 „	3	Diphtheria. Heart Failure
19	Oct. 5	E.H.	37 „	9	Enteric Fever. Exhaustion.
20	„ 12	H.B.	2¾ „	2	Scarlet Fever. Sæpraemia.
21	„ 14	M.W.	40 „	2	Enteric Fever. Pneumonia. Exhaustion.
22	„ 27	E.P.	5 „	1	Malignant Scarlet Fever. Heart Failure.
23	„ 28	B.H.	20 „	2	Enteric Fever. Pneumonia. Heart Failure.
24	Nov. 26	F.H.S.	6 „	7	Diphtheria. Heart Failure
25	„ 29	D.K.	6 „	9	Scarlet Fever. Exhaustion
26	Dec. 31	W.S.	42 „	7	Enteric Fever. Delirium and Exhaustion.
27	„ 31	M.A.J.K.	2¾ „	21	Scarlet Fever. Broncho- pneumonia.

TABLE LXXII.

The following bacteriological work has been carried out at the Fever Hospital Laboratory during 1907.

Material Examined.	Positive	Negative	Total
<b>FOR DIPHTHERIA BACILLI :</b>			
Throat Swabs .....	154	395	549
Nose Swabs ... ..	18	11	29
Ear Swabs .....	1	1	2
Membrane .....	3		3
Air from Schoolroom .....	...	10	10
<b>FOR TUBERCLE BACILLI :</b>			
Sputum .. .....	110	251	361
Udders .....	27	8	35
Milk .....	1	4	5
<b>FOR ANTHRAX BACILLI :</b>			
Sheep's Blood .....	3	2	5
Sheep's Spleen .....	1	2	3
Sheep's Kidney .....	1	...	1
Sheep's Lung .....	1	...	1
Cows' Spleen .....	2	...	2
Pig's Spleen .....	1	2	3
Pig's Lung .....	...	1	1
Pig's Kidney .....	2	...	2
Pig's Muscle .....	1	...	1
Pig's Blood .....	...	2	2
Wound received in dressing a Sheep with Anthrax .....	...	1	1
<b>FOR TYPHOID BACILLI :</b>			
Abscess .....	2	...	2
Vaginal Discharge.....	2	...	2
<b>FOR BACILLUS OF SWINE ERYSIPELAS :</b>			
Pig's Skin .....	...	1	1
Pig's Blood.....	...	1	1
Pig's Spleen .....	...	1	1
<b>FOR COCCI :</b>			
Joint Effusion (Calf) .....	1	...	1
Liver Abscess (Calf) .....	1	...	1
<b>FOR ACTINOMYCOSIS :</b>			
Jaw of Cow ... ..	1	...	1
Total.....	333	693	1026

## THE BACTERIOLOGY OF BLACKBURN MILK.

During 1907 it was possible, with the help of Dr. Lawrence, to investigate some conditions under which Blackburn milk leaves the various farms, from a bacteriological point of view. This bacteriological investigation, however, only deals with the enumeration of the various germs which grow in milk and is not concerned with the identification of these germs.

For this purpose a few samples of milk at the outset were collected and sent to the Manchester Public Health Laboratory.

The following are details of such samples:—

At 5 o'clock a.m. on March 25th, 1907, at my request Mr. Stirling visited the cowsheds at the B.U. Farm and collected four samples of milk for bacteriological examination.

In the large cowshed 31 cows are kept, 15 on one side and 16 on the other side. Milking began at 5-10 o'clock a.m. The milk from the cows was received into metal pails, and these were emptied when full into large receptacles placed *within* the cowshed.

### LARGE SHED. 31 COWS.

#### 15 Cows.

At 5-30 o'clock a.m. seven cows had been milked and their milk placed in the large can. A sample was collected in Can B. 37.

At 5-50 o'clock a.m. the remaining eight cows had been milked and their milk emptied into the large can. A sample was collected in Can B. 36.

#### 16 Cows.

At 6-10 o'clock a.m. all the 16 cows had been milked and their milk placed in a large can, from which a sample was collected in Can B. 39.

### SMALL COWSHED, 14 COWS.

Fourteen cows are kept in this shed, and milking began at 5-10 o'clock a.m. and finished at 6-20 o'clock a.m., when a sample was collected in Can B. 40 from the large can into which all the milk from these cows had been emptied.

The sample cans were immediately placed in ice-boxes and delivered at the Public Health Laboratory, Manchester, at 9-30 a.m. The milk had not been sieved when the samples were collected.

At 4-30 a.m. on March 26th, 1907, Mr. Stirling visited T.O.M. Farm, and collected four samples of mixed milk.

### LARGE SHED, 32 COWS.

Milking was begun at 5-25 a.m. o'clock and 16 of the cows were milked at 5-55 a.m., when a sample was collected in Can 24 from a large can containing the milk of the cows.

At 5-50 o'clock a.m. the milking of the other 16 cows began and was finished at 6-15 o'clock a.m., when a sample was collected in Can 41 from a large can containing the milk of the cows.

The large cans were both placed in the yard, and the milk was sieved through a metal sieve before the samples were taken.

### SMALL COWSHED 16 COWS.

Only 14 of the cows were giving milk. Milking began at 6-10 o'clock a.m., and at 6-30 o'clock a.m. five cows had been milked, and a sample was taken in Can 11 from the large can into which the milk had been placed.

The milking of the remaining nine cows began at 6-30 o'clock a.m. and terminated at 6-45 o'clock a.m., when a sample was collected in Can 42 from the same large can.

In this case one large can only was used, and it was also placed in the yard and the milk sieved before the samples were taken.

All the samples were immediately placed in ice-boxes and delivered at the Public Health Laboratory at 9-39 o'clock a.m.

The following report on the two foregoing samples was received on April 20th, 1907 :—

The specimens sent for examination were the following :—

- B.37 (Lab. No. 2,016A) B.U. Farm, Shed with 31 cows.
- B.36 (Lab. No. 2,016B) B.U. Farm, Shed with 31 cows.
- B.39 (Lab. No. 2,017A) B.U. Farm, Shed with 31 cows.
- B.40 (Lab. No. 2,017B) B.U. Farm, Small Shed with 14 cows.
- B.24 (Lab. No. 2,022A) T.O.M. Farm, Shed 1 with 32 cows.
- B.41 (Lab. No. 2,022B) T.O.M. Farm, Shed 1 with 32 cows.
- B.11 (Lab. No. 2,023A) T.O.M. Farm, Shed 2 with 14 cows.
- B.42 (Lab. No. 2,023B) T.O.M. Farm, Shed 2 with 14 cows.

Both sets of samples were taken under the conditions ordinarily prevailing at the farms. At the B.U. Farm the animals were groomed and the milkers' hands washed before commencing milking. The milk was collected in pails and emptied into large uncovered tins in the gangway of the shed without sieving or refrigeration. The samples were taken at various intervals of time after the milkers had commenced work.

Samples B.37 and 36 were taken from the same can—B.37 when seven cows had been milked and B.36 when the milk from eight more cows had been added.

Sample B.39 was the mixed milk of 16 other cows in the same shed. In this case the pails were emptied into two cans, the contents of which were mixed together before the sample was collected.

Sample B.40 was the mixed milk of 14 cows in the small shed.

At T.O.M. Farm the animals were not groomed, and their udders and tails were dirty. The milkers' hands were washed before commencing milking. The milk as collected was passed through a metal sieve but not refrigerated. The collecting-cans were in the yard and not covered.

Sample B.24 was the mixed milk of 16 cows.

Sample B.41 was the mixed milk of 16 cows collected in another can.

Samples B.11 and B.42 were taken from the same can—B.11 when five cows had been milked, B.42 when the milk from the remaining nine cows had been added

All the samples when collected were immediately placed in an ice-box, where they were kept till the examination was begun at the Laboratory.

#### METHOD OF EXAMINATION.

##### I.—ESTIMATION OF THE NUMBER OF BACTERIA PRESENT PER C.C.

Gelatine plates (+ 10) were made with various dilutions. They were incubated at 20° C. and the colonies counted at the end of 72 hours. Note was taken of the number of kinds of colonies.

##### II.—AMOUNT OF CREAM AND SEDIMENT.

For this purpose 40 cubic centimetres c.c. of the sample were centrifugalised in ordinary milk tubes as used in the Laboratory. The height of the column of cream and the diameter of the sediment were measured in millimetres after centrifugalisation.



## III.—EXAMINATION OF THE SEDIMENT.

After drawing off the cream and supernatant milk a platinum loopful of the sediment in each case was taken for microscopical examination. The same loop was used for all the samples, and as far as possible care taken to make all the microscopical preparations in the same way.

The results obtained are summarised in the table given below. The first and second columns give the number of the sample and the laboratory number. The third column gives in minutes the time that elapsed from the commencement of milking till the sample was collected, i.e., the time during which the milk was exposed to contamination from the air, etc., and during which any bacteria originally present multiplied before growth was arrested in the ice-box.

The fourth column gives the estimated number of bacteria present per c.c. as ascertained by the method adopted.

The fifth column gives the number of kinds of colonies distinctly recognisable by naked eye and microscopical examination.

The sixth column states the general result of the microscopical examination of the sediment.

The last two columns give the cream and sediment measured after centrifugalisation, the quantity of milk taken being 40 c.c. in each instance.

TABLE LXXIII.

Sample.	Lab No.	Minutes.	Bacteria per c.c.	Number of Kinds.	Microscopical Examination: of Sediment.	Millimetres of	
						Cream.	Sediment.
B 37	2016 A	15	Not estimated. All plates liquefied.	Not estimated.	Very few cells. Small quantity brown and black granular matter. Fragments of vegetable tissue. Hairs.	8	6
B 36	2016 B	40	Non-liquefying, 530,000 } Liquefying, 190,000 }	Non-liquefying, 2 } Liquefying, 3 } 5	Moderate number of cells. Considerable quantity brown and black granular matter. Much vegetable matter. Hairs.	7	6
B 39	2017 A	60	Non-liquefying, 43,000 } Liquefying, 170 } Moulds, 400 }	Non-liquefying, 4 } Liquefying, 2 } Moulds, 1 }	Moderate number of cells. Small quantity brown and black granular matter. Some vegetable tissue. Hairs.	9	8
B 40	2017 B	70	Non-liquefying, 3,890,000 } Liquefying, 30,000 }	Non-liquefying, 2 } Liquefying, 2 }	Moderate number of cells. Small quantity brown and black granular matter. Some vegetable tissue. Hairs.	6	8

TABLE LXXIII.—continued.

Sample.	Lab. No.	Minutes.	Bacteria per c.c.	Number of Kinds.	Microscopical Examination of Sediment.	Millimetres of	
						Cream.	Sediment.
B 24	2022 A	30	Non-liquefying, 45,300 } Liquefying, 1,300 }	Non-liquefying, 2 } Liquefying, 2 }	Moderate amount brown and black granular matter. Few cells. Some vegetable tissue.	9	7
B 41	2022 B	25	Non-liquefying, 49,000 } Liquefying, 2,000 }	Non-liquefying, 2 } Liquefying, 2 }	Moderate amount brown and black granular matter. Few cells. Some vegetable tissue.	12	6
B 11	2023 A	20	Non-liquefying, 49,000 } Liquefying, 1,500 }	Non-liquefying, 2 } Liquefying, 1 }	Moderate number of cells. Much black and brown granular matter. Much vegetable matter.	9	6
B 42	2023 B	35	Non-liquefying, 60,500 } Liquefying, 3,000 } Moulds, 9,000 }	Non-liquefying, 2 } Liquefying, 2 } Moulds, 1 }	Moderate number of cells. Much black and brown granular matter. Much vegetable tissue.	17	7

It will, therefore, be seen that the greatest number of colonies were found in B.U. Farm milk. This was contrary to my expectations. I thought that possibly the use of sieves and the fact that the milk-pails were outside the cowshed in the case of T.O.M. Farm might account in some measure for the discrepancy.

I therefore asked Mr. Stirling to visit B.U. Farm again, making arrangements for sieves to be used and for the milk cans to be outside the shed.

This was done as follows :--

At 5 o'clock a.m. on May 15th, 1907, he visited the cowsheds at the B.U. Farm and collected four samples of milk for bacteriological examination.

In the large cowshed 27 cows are kept--15 on one side and 12 on the other side. Milking began at 5-10 a.m. The milk from the cows was received into metal pails, and these were emptied when full into large receptacles placed in the yard outside the cowshed.

#### LARGE SHED, 27 COWS.

##### 15 Cows.

At 5-30 o'clock a.m. eight cows had been milked and their milk placed in a large can. A sample was collected in Can B.36.

At 5-50 o'clock a.m. the remaining seven cows had been milked and their milk emptied into a large can. A sample was collected in Can B.37.

##### 12 Cows.

At 5-55 o'clock a.m. all the 12 cows had been milked and their milk placed in a large can, from which a sample was collected in Can B.38.

## SMALL SHED, 14 COWS.

14 cows are kept in this shed, and milking began at 5-10 o'clock a.m. and finished at 6-10 o'clock a.m., when a sample was collected in Can B.39 from the large can into which all the milk from these cows had been emptied.

The sample cans were immediately placed in ice-boxes and delivered at the Public Health Laboratory, Manchester, at 8-10 a.m.

The milk was passed through metal sieves before the samples were collected.

On May 28th, 1907, the following report was received from Manchester :—

The specimens of milk were collected at the B.U. Farm on May 15th. The conditions prevailing were the same as when the specimens previously reported upon were taken, but in the present case the large receptacles into which the pails were emptied were placed in the yard outside the cowshed, and also the milk was passed through a metal sieve.

The examination was carried out by the same methods as before, and the results are stated in a similar table.

The specimens were the following :—

B.36 Large Shed.	B.37 Large Shed
B. 38 Large Shed.	B.39 Small Shed.

TABLE LXXIV.

Sample	Lab. No.	Minutes.	Bacteria per c.c.	Number of Kinds.	Microscopical Examination of Sediment.	Millimetres of	
						(ream.	Sedi- ment.
B 36	2101	20	Non-liquefying, 875,000 } Liquefying, 30,000 } 905,000	Non-liquefying, 2 } Liquefying, 3 } 5	Small particles of dust. Moderate number of cells. Small number bacteria (cocci bacilli, with darkly stained granules)	13	6
B 37	2099	40	Non-liquef. in z, 1,740,000 } Liquef. in g, 325,000 } 2,065,000	Non-liquefying, 1 } Liquefying, 3 } 4	Dust. Moderate number of cells. Moderate number of bacteria (cocci diplococci, thick bacilli; Bacilli with granules).	13	6
B 38	2100	45	Non-liquefying, 10,000 } Liquefying, 1,000 } 11,000	Non-liquefying, 2 } Liquefying, 1 } 3	Dust. Moderate number of cells. Small number of bacteria (cocci, Large diplococci. Small pointed bacilli).	13	7
B 39	2102	60	Non-liquefying, 875,000 } Liquefying, 30,000 } 905,000	Non-liquefying, 2 } Liquefying, 3 } 5	Dust. Moderate number of cells. Small number of bacteria (cocci. Pointed bacilli. Bacilli with granules).	13	6



It will, therefore, be seen that the use of sieves and the placing of milkcans outside resulted in a considerable diminution of colonies in the second set of milk samples obtained from B.U. Farm.

At the same time the number of colonies was still greater than in the set of samples obtained from T.O.M. Farm.

This may be explained partly by the fact that the sources of contamination of milk are so numerous, the relative cleanliness of the milkers and the cows at various farms differing so much.

Another sample of milk was obtained as follows:—

On October 31st, 1907, samples of milk were obtained from L.W. Farm.

#### LARGE SHED.

This shed was occupied by 15 cows. The shed was moderately clean, the bedding was waste hay, and the walls required whitewashing.

#### SMALL SHED.

In this shed were two cows. The bedding used was dry leaves. The walls of the shed required whitewashing.

A sample of the mixed milk of 16 of the cows was collected

Milking commenced about 4 o'clock p.m. and terminated at 4-45 o'clock p.m., when the sample from a large can placed in the gangway in front of the cows in the large shed and containing the mixed milk of the 16 cows was obtained.

The milk had been passed through both a cloth and a metal sieve. The sample can was placed in an ice-box within half an hour after collection, and immediately forwarded by rail to Manchester for examination.

On November 8th the following report was received :—

CAN B 38. — MIXED SAMPLE FROM 16 COWS.

Number of colonies growing on nutrient gelatine at 22° C. counted on third day of incubation, average of three plates; non-liquefying bacilli, 95,000 per C.C.; liquefying bacilli, 7,666; total, 102,666. Amount of sediment obtained by centrifugalisation from 80 c.c. milk, 7½ cbc. m.m. The sediment consisted of fat globules, a few epithelial cells, vegetable debris, and some particles of cotton. The bacillus coli communis was not found in 1 c.c. of the milk.

I understand that systematic weekly bacteriological examinations of the milk from the Walker-Gordon Farm have been carried out for some years. The milk is examined in regard to its condition at the time of delivery, i.e., the carman delivering the milk to the customers delivers some bottles to the laboratory for the bacteriological examination.

The results vary from about 7,000 colonies per cubic centimetre (C.C.) to about 17,000 per cubic centimetre.

The method of examination of samples of milk at Manchester was examined by my assistant and myself, through the courtesy of Professor Delépine, and then a systematic investigation was carried out by Dr. Lawrence. At my request Dr. Lawrence has written the following lucid account of the experiments, from which certain conclusions may be drawn which are of great interest. This account is a valuable addition to my Annual Report.

## BACTERIOLOGICAL SURVEY OF THE MILK SUPPLY OF BLACKBURN.

The following investigation was carried out at the suggestion of Dr. Greenwood to determine the relation, if any, of the degree of bacterial pollution of milk to the sanitary condition of the milk-sheds where the milk is obtained.

The milk was taken from milk-sheds within the Borough of Blackburn. In all fifty-eight samples were taken, but the first eight were considered as a "preliminary exercise" in the methods employed, and subsequently eight more samples from the same farms were taken and examined. Fifty samples are, therefore, available for comparison.

The samples were obtained personally at the farms during the afternoon milking. The milk was received into sterilised bottles, into which it was poured out of the measure used to distribute the milk. To ensure having a good sample the milk was thoroughly stirred up before taking it. The milk was the mixed milk of no less than six cows. This precaution was taken to meet the possible objection that perhaps a high bacterial count was due to taking the milk of a cow suffering from mastitis. (As a matter of fact, cows suffering from mastitis, unless it be tubercular mastitis, are usually too tender to permit the handling of their teats). Often as many as 20 cows had been milked before the sample was taken. The stopper of the bottle was at once replaced, and not removed until the moment the milk was measured for diluting.

The milk was conveyed with great dispatch to the laboratory, where it was either examined at once or kept on ice until it was convenient to begin the examination.

Briefly stated, the method of examination is to mix a measured quantity of milk with some suitable culture medium, incubate the mixture, and count the colonies that develop. Each colony is assumed to have arisen by the progressive multiplication of a single organism previously existing in the milk and from these data, viz., the amount of milk used and the number of colonies of bacteria which develop, the number of organisms in a given amount of milk can be estimated.

The bottle containing the milk for examination is shaken for ten minutes or more to ensure an even distribution of the bacteria throughout the milk. From this, by means of a graduated glass pipette one cubic centimetre of milk is withdrawn

and allowed to run into a graduated sterile flask of one thousand cubic centimetres capacity. Sterilised water is poured in until the fluid reaches the 1,000 c.c. graduation mark. The flask is agitated until the milk and water are thoroughly mixed. The 1,000 c.c. of the mixture contains 1 c.c. of milk.

Three tubes of nutrient gelatine are placed in warm water at a temperature not exceeding  $37^{\circ}$  C. until the gelatine is melted. When the gelatine is melted the cotton-wool plugs in the mouths of the tubes are ignited, the mouth of the tubes held in the flame of a Bunsen burner for a moment or two, and the plugs removed by sterile forceps. Into each tube 1 c.c. of the mixture of milk and water is poured from a graduated pipette. The culture media and the diluted milk are mixed by swinging the tube in a circular direction, avoiding the formation of bubbles. If these should occur, they may be removed by replacing the tube in warm water. When the media and the diluted milk are thoroughly mixed, they are poured out into a Petri dish measuring nine centimetres in diameter. The dish is placed on a perfectly flat surface and allowed to cool. When cool it is placed in a "moist chamber" and incubated aerobically at  $20^{\circ}$  C.

The gelatine plates are examined daily until the eighth day. The plates were examined with a lens and the colonies counted. A few plates were examined at the end of a fortnight, but it was found that no increase of the number of colonies had taken place between the eighth and fifteenth days. When these plates were made from the same sample of milk it was occasionally found that there was some discrepancy between the number of colonies counted on each plate in the first three or four days. This discrepancy almost entirely disappeared at the end of a week. In some of the earlier examinations, besides estimating the number of colonies in  $\frac{1}{10000}$  c.c. of milk, the colonies in  $\frac{1}{100000}$  c.c. of milk were estimated, but this was found to be unnecessary in most cases and useful only where the  $\frac{1}{10000}$  c.c. plates were densely crowded with colonies. In the estimation of the colonies in  $\frac{1}{10000}$  c.c. of milk, the possibility of experimental error is increased.

The medium used for growing the milk organisms was gelatine-peptone-bouillon, which is a mixture of bouillon and peptone solution, with a suitable quantity of salt, made solid by the addition of gelatine.

The exact composition is:—

Gelatine	.....	60 grammes
Peptone	.....	5    "
Salt	.....	2.5   "
Lemco	.....	2    "

Water to make up to 500 c.c.

The ingredients are heated in a pan till all are dissolved. While still hot, they are rendered alkaline to litmus paper. Two c.c. of normal soda are added after the neutral point is reached. When cool and before solidification has occurred the white of one egg is added, and the mixture thoroughly stirred with a glass rod. It is boiled again until the white of egg is coagulated in large flakes and the internatant fluid is clear.

It is filtered through two folds of filter paper into a flask.

From the flask it is measured into test tubes, 10 c.c. being a suitable quantity to put in each. The test tubes are plugged with cotton-wool and placed in the Koch's steriliser at 100° C. for 20 minutes on three successive days.

The reaction of the media is said to influence the growth of bacteria. The media used in these experiments were made in exactly the same manner, special care being taken to find accurately when the neutral point to litmus was reached. To find if one batch of gelatine-peptone-bouillon was comparable with another, tubes were taken of different batches and inoculated with equal quantities of one sample of milk. The results were very good, and showed that, for these experiments at least, the media made on different occasions were alike in their properties.



The bottles used for collecting the milk and the Petri dishes used for "plating" the gelatine-peptone-bouillon were sterilised by heating in a hot-air oven for one hour at a temperature of 170° C.

The pipettes used for measuring the milk and the diluted milk were sterilised by steaming in the Koch's steriliser for half an hour.

The water used for diluting the milk was boiled for quarter of an hour and the flasks plugged with cotton-wool.

The examination was controlled at every stage. Tubes of media were kept and incubated, and remained sterile. Two tubes of gelatine-peptone-bouillon were melted and poured into one of the sterilised bottles. The melted gelatine was made to run over the whole of the interior of the bottle and then poured into a sterilised Petri dish, cooled, and incubated. It remained sterile.

Melted gelatine was withdrawn from the tubes by means of sterilised pipettes and run on to Petri dishes. The Petri dishes were incubated and remained sterile.

Bacteria are the cause of all the natural changes occurring in milk. Under certain circumstances, i.e., by taking special precautions against contamination, milk can be obtained from the cow free from bacteria. Such milk, if received direct into a sterile bottle and guarded from contamination by bacteria, will keep sweet indefinitely. Bacteria are the causes of all the changes, useful or dangerous, in milk. Milk is an excellent culture medium for many kinds of bacteria. It contains in solution all the substances on which bacteria thrive, and its temperature, for some time at least after it is drawn, favours the growth of bacteria. The "souring" of milk is the result of fermentation caused by bacteria, which produce changes in the milk-sugar leading to the production of lactic acid, and it is the presence of this lactic acid which gives the characteristic taste and odour to sour milk.



The other fermentations, which need not be enumerated, to which milk is liable, are likewise due to bacteria.

Bacteria once introduced into milk find it a suitable medium for growth, and multiply at a great rate. Each bacterium divides into two, and the two resulting bacteria carry on the process indefinitely. The process, in fact, resembles the increase of money placed out at compound interest at 100 per cent. per half-hour or so, for bacteria under observation have been noticed to divide once in 30 minutes or thereabouts. This multiplication of bacteria continues as long as the necessary food-stuffs on which the bacteria thrive are present in milk, or until it is inhibited by the products of bacterial activity.

The enormous power of proliferating gives increased importance to the bacteria gaining access to the milk in the cowsheds. Such bacteria are present in the milk while it is warm and have a longer career in the milk until the time when the milk is consumed. Their importance is further increased by the fact that many of the bacteria, gaining access to milk at this time, are of intestinal origin. This will be further considered when the source of the bacteria is considered.

There are four sources of bacterial contamination at the cowsheds :—

1. The Cow.
2. The Milker
3. The Byre.
4. The Utensil.

(1) The first milk which the cow yields is very rich in bacteria. It is quite impossible by the manipulation of milking completely to empty the ducts of the udder. This residual milk is accessible to organisms from the air and from the bedding on which the cow may happen to lie. The residual milk is, owing to its chemical constitution, a good medium for the growth of organisms, and, being kept at blood-heat by the animal's body, it provides all the conditions necessary for luxu-

riant bacterial growth. The residual milk of one milking becomes the fore-milk of the next. This is exceptionally rich in bacteria, and, as the foremilk is mixed with the rest, it raises the average bacterial content of the whole milk. Some few milkers squirt the first few drops of milk on the ground instead of into the milking-can.

In other ways the cow contributes bacteria to the milk. It is often splashed by its own excretions. It lies down in its own faeces, and its flanks, tail, udder and teats are often thickly coated with excrement. The excrement is rich in bacteria, and is detached by the movement of the cows or the friction of the milker's shoulder with the cow's flanks, or his manipulation of the teats. The open milk-can is near at hand to receive such detached faecal matter. Even if the cow is not obviously contaminated, the friction of the milker's shoulder against the cow's dry coat contributes a large number of organisms to the surrounding air. This has been shown conclusively by exposing a flat plate containing nutrient medium on the ground beneath the cow's abdomen for a definite length of time while the animal is being milked, and washing the udder, flanks, and abdomen of the cow and exposing another plate in the same place for an equal length of time. The number counted on the first plate were much in excess of those on the second plate, showing that the relative preponderance in this case was due solely to the dryness of the cow's coat.

It is in Blackburn the invariable practice to remove the coarse contamination from the udder by brisk massage before milking, but this is always done with the open milking-can within arm's length.

In considering this source of bacteria, no account is taken of diseases of the cow, though where the cow's udder is diseased it is able to contribute bacteria to the milk.

(2) The milker can contribute organisms to the milk. His clothes are of necessity dirty owing to the character of his work. His hands are often dirty. He not infrequently holds the tail

of a restless cow with one hand while he milks with the other, subsequently milking with both hands when the cow becomes quieter. He carries a milking-stool splashed with faecal matter with him from cow to cow, and inevitably soils his hands when he does so.

In Blackburn, women milkers wear linen bonnets and aprons when milking more with the object of sparing their clothes than of preventing their clothes contaminating the milk. The men never wear overalls or aprons. They would probably say that the wearing of an apron diminished the security of the milk-can held between their knees.

It is said that the milkers moisten their fingers with milk and wipe round the edge of the milking-can as a sort of ritual. This was never seen at any of the fifty farms visited. The milkers do not specially wash their hands before milking. Apart from this they have not been noticed to be guilty of any serious offence against cleanliness.

One was noticed to sneeze during milking and one turned aside to blow his nose in primitive fashion, and, having done so, resumed his milking. This last was the only case of flagrantly filthy habit noticed.

(3) A third source of contamination is the air of the cowshed. Fortunately, these organisms are almost all harmless. The exposure of two similar plates of gelatine-peptone-bouillon, one in the cowshed and one out of doors, for equal lengths of time, showed that the organisms falling from the air of the cowshed on to the gelatine plate were far more numerous than those falling on to the plate in the open air. The organisms from the air of the cowshed resembled those found in the milk both in morphological character and cultural features (as far as this latter could be tested with one culture medium). Cowsheds are seldom ventilated if the impression of one entering a cowshed from the open air may be relied on as a test. They are almost always "stuffy" and dusty. The dust comes from the hay—from the hides of the cows, and from the bedding. Not in-

frequently the hayloft directly adjoins the cowshed for convenience in feeding the cows. The cowsheds from their construction are difficult to cleanse, and the difficulty is increased by the usual darkness of the cowsheds. The use of bedding—hayseeds or shoddy—is likely to contribute dust to the air. An accidental circumstance provided the opportunity of noticing the effect of sweeping the floors. In one cowshed a gelatine plate had been exposed for five minutes, when the presence of an emissary of the Medical Officer of Health stirred the owner into activity. He set a boy to sweep the floors. The first plate was at once covered. A second plate was exposed for an equal length of time after the sweeping had begun. Both plates were incubated, and while the first plate contained a large number of colonies, the second plate was so thickly studded with them that they could not be counted.

(4) A fourth source of organisms is the cans and milking utensils. This is obviously closely bound up with the quality of the water supply, but might be made independent of the bacteriological purity of the water by boiling the water before use. (At the factories where "condensed milk" is prepared the empty milk tankards are sterilised by means of a jet of steam before they are returned to the farmers).

The sieves used should be of metal, so that they may be scalded before use. If a cloth sieve is used it ought to be boiled previously.

The cans have wide funnel-like mouths, giving a wide catchment area for germs.

It has been mentioned before that many of the organisms are harmless. Some cause fermentation of milk and lead to souring. Some are of intestinal origin and must be regarded with great suspicion, for they are likely to flourish when again introduced into the intestine. The importance of avoiding bacterial contamination at the cowshed lies in the fact that organisms introduced there have so much longer time in which to multiply than those introduced later, and this is still more important where a long time is spent in transit.

The average number of bacteria in these 50 samples of milk was 40,000 per cubic centimetre. Thirty-two samples had less than this number and 18 have more.

It is not suggested that these numbers enable one to classify the cowsheds accurately, or that milk which contains more than 40,000 organisms per cubic centimetre should on that account be condemned. It is possible, and not at all improbable, that the numbers fluctuate from day to day, and possibly some of the samples of milk containing 40,000 organisms per cubic centimetre might easily change places if the samples had been taken on other days.

But the worst samples, viz., the last four on the list, are so indisputably associated with bad hygienic conditions that it is difficult to escape the conclusion that the insanitary conditions and the high degree of bacterial pollution stand in the relation of cause and effect.



TABLE LXXV.

Date.	Number of Organisms in thousands per c. c.			Average in Thousands.	Air-space per cow.	Ventilation.	Lighting.	Bedding.	Proximity of Cows to Fodder, Hay, etc.	Drain Inlet.	REMARKS.
	Lab.	No.	in thousands								
29.10.07	31	3	4	3.3	cub.ft. 903	...	..	..	..	...	...
12.11.07	43	3	4	3.6	903	good	good	none	no	outside	clean ; well built
5.11.07	33	3	3	4.3	476	good	good	none	no	outside	cooler used for milk ; cows clean
13.11.07	47	3	5	5.0	616	good	good	none	no	outside	very clean ; milkers clean ; utensils stand out- side ; cows clean
21.6.07	12	2	5	5.3	582	good	good	none	no	inside	clean ; cows clean
28.10.07	29	6	5	5.3	490	good	good	none	no	outside	well built ; clean ; cows clean
25.6.07	15	5	5	5.6	347	fair	good	none	no	outside	cooler used ; cows clean
7.11.07	35	10	7	7.3	506	good	good	none	no	inside	very clean ; yard very tidy ; people clean ; cows clean
3.6.07	3	8	12	8.3	353	good	good	none	no	outside	clean ; cows clean
19.6.07	11	8	12	8.3	800	good	good	none	no	inside	clean ; cows very clean ; milker clean
4.9.07	27	7	9	8.6	...	good	good	none	no	outside	clean ; cows clean
29.10.07	30	11	14	10.6	338	good	good	none	no	outside	clean ; cows clean
11.11.07	41	7	15	10.6	455	fair	fair	none	no	inside	clean ; cows clean



TABLE LXXV.—continued.

Date.	Lab. No.			Average in Thousands.	Air-space per cow	Ventilation.	Lighting.	Bedding.	Proximity of Cows to Fodder, Hay, etc.	Drain Inlet.	REMARKS.
12.11.07	44	10	16	12	555	fair	good	none	no	outside	clean : cows clean
21.6.07	13	10	13	16	473	good	good	none	no	inside	clean ; cows clean
17.8.07	26	14	18	11	455	good	good	none	no	inside	clean ; cows clean
8.11.07	38	16	20	12	577	good	good	none	hay loft adjoining	outside	clean ; cows clean
4.7.07	21	17	12	23	500	good	good	none	no	inside	clean ; cows clean ; milk utensils outside
16.8.07	22	22	12	17	542	good	good	none	no	inside	clean ; cows clean
14.11.07	50	16	18	20	643	good	good	none	no	inside	clean ; cows clean ; milkers clean
18.6.07	10	29	19	10	500	good	good	none	no	outside	fair ; cows fairly clean ; milk utensils cooled in water
13.11.07	46	23	17	18	466	good	good	none	no	inside	clean ; cows clean
30.10.07	32	22	18	26	...	good	good	none		inside	model dairy
17.8.07	24	25	24	17	770	good	good	none	hay store in same building	inside	clean ; cows clean ; refrigerator used
8.11.07	39	25	22	20	700	good	fair	none	no	inside	clean ; cows clean
3.7.07	17	27	25	24	460	good	fair	none	no	inside	...

TABLE LXXV. — continued.

Date.	Lab. No.	Number of Organisms in thousands per c. c.			Average in Thousands.	Air-space per cow.	Ventilation.	Lighting.	Bedding.	Proximity of Cows to Fodder, Hay, etc.	Drain Inlet.	REMARKS.
8.11.07	37	27	30	26	27.0	cub. ft. 738	good	good	none	no	inside	clean; cows clean
4.7.07	19	33	30	34	32.0	462	good	good	none	no	inside	clean; cows clean
12.11.07	42	36	30	31	32.6	561	good	fair	none	no	outside	clean; cows clean; milk utensils placed in adjoining room
1.6.07	2	48	20	33	34.0	329	good	fair	shoddy	adjoining hay store	inside	clean; cows clean; milk utensil stands in adjoining room
7.6.07	6	40	31	35	35.0	360	good	good	hay litter	no	inside	clean; cows clean; milk utensil in cow-shed
17.8.07	25	37	40	34	37.0	...	...	...	..	...	...	.....
3.6.07	4	41	46	47	41.0	585	good	good	none	no	inside	clean; cows clean
28.10.07	28	46	38	42	42.0	500	good	good	none	no	inside	clean; cows clean
4.7.07	20	45	40	50	45.0	484	good	fair	shoddy	no	inside	clean; cows clean; milk utensils cooled in water
25.6.07	14	48	49	46	49.0	400	good	fair	hay	no	outside	not clean; cows not clean
14.11.07	49	50	52	54	53.0	476	fair	good	hay	no	inside	clean; cows clean
5.11.07	34	53	58	63	58.0	582	poor	bad	hay	no	inside	fair; cows not very clean
3.7.07	18	62	57	55	58.0	...	...	...	...	...	inside	.....

TABLE LXXV.—continued.

Date.	Number of Organisms in thousands per c. c.			Average in Thousands.	Air-space per cow.	Ventilation.	Lighting.	Bedding.	Proximity of Cows to Fodder, Hay, &c.	Drain Inlet.	REMARKS.
	Lab.	N									
15.6.07	9	60	43	77	60.0	cub. ft. 436	good	none	no	inside	clean; cows clean; utensils cooled in water
7.11.07	36	68	68	70	68.0	510	good	hay	no	inside	clean; cows clean
17.8.07	5	69	60	76	69.0	630	good	hay	no	inside	clean; cows clean
17.8.07	23	61	80	69	70.0	418	fair	hay litter	no	inside	moderate; cows moderately clean
14.11.07	48	79	76	70	75.0	426	poor	hay litter	no	inside	moderate; cows moderately clean
10.6.07	8	85	80	76	80.0	535	good	hay litter	adjoining hay store	inside	clean; cows clean
11.11.07	40	77	88	83	82.0	500	good	none	no	outside	clean; cows clean; very good
10.11.07	103	86	94	94	94.0	290	bad	hay litter	no	inside	dirty; cows dirty
1.6.07	1131	150	112	131.0	468	bad	bad	hay litter	adjoining hay loft	outside	dirty; cows dirty
13.11.07	45	196	184	180	186.0	...	bad	hay litter	adjoining hay loft	inside	dirty; cows fairly clean
1.7.07	16210	454	191	235.0	380	fair	bad	hay litter	adjoining hay loft	inside	fair; cows fairly clean

To take some of the cowsheds in detail :—

No. 16 is a stone structure one storey high. It is intended to accommodate seven cows. The stalls are laid with bricks, the channels are flagged. The drain inlet is inside. The channel to receive faeces and urine is not sufficiently sloped.

The air-space per cow is 380 cubic feet. There are two windows, made to open, which serve for light and ventilation.

The cows stand facing a platform about the level of their heads. This platform is the floor of a hayloft, which is not divided from the cowshed. At the time of visit, the hayloft was empty except for a little hay. The floor was strewn with hay seeds, and when the door of the hayloft and the door of the cowshed were open at the same time the hayseeds were blowing in eddies about the loft.

The cows were fairly clean. The milk was received into a metal tankard, standing inside the cowshed.

Probably the dusty atmosphere transformed a fair sample of milk into a poor one.

No. 45 is an old stone structure. The cowshed is separated from the hayloft by a rough wooden partition. The space in the rafters is used for storing timber and present numerous facilities for the collection of dust. The stalls are arranged in one row, with a narrow passage in front to facilitate feeding the cows and a channel behind to receive the solid and liquid excrement. The fall of the channel is slight. The floor of the stalls is of brick; that of the channel of flags. The bedding used is hay. The light is very bad, and the shed must be exceptionally difficult to clean.

No. 1 is a cowshed with serious structural defects. It is built of stone. The air-space per cow is 468 cubic feet. The floor is of brick and the channel of flags. The cows are arranged in two rows, one channel between serving to receive the

excrement of both rows of cows. At the time of visit it was a morass of filth. The cow-dung is swept out by the door into a midden two yards away.

There are two windows, and even with the door open the light is bad. Two windows that open and four inlets in the wall serve for ventilation. As a result of a recent prosecution a ventilating shaft has been built in the roof.

No. 7 illustrates all the defects which a cowshed can have. The fabric is old. The air-space per cow is 290 cubic feet. The ceiling is low. The place is dark. It takes some time for one entering from outside to become accustomed to the gloom. Light is obtained from three windows in one wall and one small one in the opposite wall and three small windows in the doors. It is quite insufficient. The stalls have floors of brick—worn very uneven, and the channels are flagged. The bedding consists of old hay. The cows are arranged in two rows facing each other. The channels for excreta are so near to the walls that these latter are splashed to a considerable height.

Though the visit was made in the summer, when the cows are out during the day, the cows were not clean.

The milk is received in a tankard, which stands inside the cowshed.

The yard outside is cobbled. There is a large midden six yards from the door of the cowshed.

One of the cows was found to have a tuberculous nodule in the right hind quarter. Another had suppurative mastitis. It was not giving milk.

On the other hand some of the farms at the head of the list present many satisfactory features.

No. 11 is essentially a clean cowshed, and it would have been matter for surprise if the milk obtained there had been

rich in bacteria. The building is of brick. The floor of the stalls is of brick. The channel is flagged, and far enough away from the wall to prevent the latter being splashed. The cows are arranged in one row. The light is excellent, being obtained from seven windows distributed over three of the walls. There is an abundant air-space, 800 cubic feet for each cow. The floor at the time of visit was swept very clean. The cows were clean. The cowshed smelt fresh. The milkers were clean.

No. 29 is a good cowshed. The building is of recent construction. The surroundings are clean. The cowshed is lofty. The lighting and ventilation are both obtained from numerous sources, thus ensuring a good uniform light and ventilation without draught. The stalls are bricked and the channels flagged. The floor is clean and the walls whitewashed. The drain inlet is outside the cowshed.

Although the number of organisms per cubic centimetre does not maintain any close relation with the airspace of the cowshed, this is not surprising in view of the numerous factors which go to make up the hygienic condition of a cowshed. At the same time, the cowsheds, the last four on the above list, the milk from which has bacteria largely in excess of the average, would unhesitatingly be classed as "bad." None of the first twenty cowsheds on the list would be classed as "bad."

As nearly two-thirds of the samples are above the average, —40,000 organisms to the cubic centimetre—this standard should not be difficult to attain, and with intelligent precautions against contamination of the milk should be attained by all of them. The difficulty is to convince farmers of the existence and ubiquity of micro-organisms. The micro-organisms are not obvious. The obvious sources of pollution can be, and often are, avoided, but the wealth of organisms which can flourish in an imperfectly cleaned vessel is rarely understood. All vessels should be thoroughly "scalded." A better plan, but one which is not available, would be to inject a current of steam into the cans after they have been washed. And once cleaned in this way the cans should not be opened until they are used to receive the next supply of milk.



The sieve is a possible source of danger. In Blackburn, metal or cloth sieves, or both, are used. It seems likely that if adequate precautions are not taken the sieve may give to the milk as many organisms as it is intended to keep out of it. A metal sieve can be boiled, and such treatment would instantly arrest all bacterial life on the sieve.

The cleanliness of the cowshed, and mainly the avoidance of dust, should be one of the main objects of the dairyman. The sweeping should be done when the cows are not in the shed, and the best time would be soon after milking, so that the dust raised might subside before the next milking.

The avoidance of dusty bedding—and it is difficult to know what bedding is not dusty—would be a gain. Many farmers do not lay down any bedding at all.

Instead of the perfunctory massage of the teats before milking, they might be quickly sponged with soap and water. This is a revolutionary idea, and would have some difficulty in establishing its propriety and usefulness in the minds of farmers.

The cows seem seldom to be groomed, and where the cowsheds are dirtiest the cows are dirty, for when chained up in the stall they cannot choose their sleeping ground. A certain amount of soiling of the tail and flanks is unavoidable, but the effect of this might be minimised by efficient grooming. Farmers say they cannot snip off the faecal accretions on the hair of the tail, because by so doing they have to sacrifice the hair as well, and this leaves the cow without any protection against flies in summer.

The personal cleanliness of the milkers is an æsthetic demand, which certainly ought to be satisfied. They should wear clean overalls over the usually dirty clothes in which they have done their other farm work.

The use of an efficient refrigerator would certainly be a gain. The overcrowding of cowsheds is objectionable, because it is well known that the organisms are more abundant in the air of an overcrowded room than in a less crowded one, and there is no reason why cows should be denied the simple hygienic measure of fresh air, which is considered to be so essential to human beings.

### CONVERSION OF PRIVY MIDDENS.

276 Privy Middens have been ordered by the Health Committee to be converted during the year, compared with 596 during 1906.

The immense superiority of the fresh-water carriage system over the other systems is recognised by all sanitarians.

Several pail-closets have also been converted to w.c.'s during the year.

I wish again to draw attention to the great desirability of replacing the old brick ashpits which remain after privy middens have been converted by portable covered metal ashbins of approved type.

### SCAVENGING.

It is important in removing the contents of ashbins that there should be as little soiling of the surface of streets and back passages as possible.

The following statement represents the work done in this branch during the year :—

Wet Ashpits Emptied .....	3,691
Dry Ashpits Emptied .....	164,858
Ashes Tubs Emptied .....	450,613
Excreta Tubs Emptied .....	608,502
Excreta Tubs Cleansed .....	608,376

2,077 Loads of Dry Ashes Refuse were tipped. No other refuse tipped.

## DESTRUCTORS.

An account of the four Destructors built and worked by the Corporation was given in my Annual Report for 1905.

The refuse during the year 1907 was destroyed at the following Destructors :—

Audley Destructor.		Tons.	Cwts.	Qrs.
Dry ashes refuse .....	6,102	7	0	
Midden .....	938	15	0	
Fish, carcasses and market refuse	1,604	10	0	
Total .....		8,645	12	0

## Greenbank Destructor.

Dry ashes refuse .....	9,892	1	0	
Midden .....	109	3	0	
Fish and market refuse .....	51	9	1	
Total .....		10,052	13	1

## Wensley Fold Destructor.

Dry ashes refuse .....	10,937	9	1	
Fish and market refuse .....	169	6	2	
Total .....		11,106	15	3

## Store Yard Destructor.

Dry ashes refuse .....	1,936	7	0	
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TABLE LXXVI.

REFUSE DESTROYED AT DESTRUCTORS, 1907.

Month	Dry Ashes Refuse			Midden . Refuse			Fish, Carcases, Market Refuse, &c.			Totals.		
	T.	C.	Q.	T.	C.	Q.	T.	C.	Q.	T.	C.	Q.
Jan	2487	14	2	37	19	1	147	0	2	2672	14	1
Feb.	2339	13	3	157	19	0	133	2	2	2630	15	1
Mch.	2789	0	2	173	14	2	177	17	2	3140	12	2
Apl.	2379	18	3	59	8	2	141	8	3	2580	16	0
May	1993	1	2	95	15	3	141	4	2	2230	1	3
June	2885	15	0	97	5	2	175	4	0	3158	4	2
July	2028	9	1	123	1	0	145	0	3	2296	11	0
Aug	2415	16	3	80	10	0	167	14	3	2664	1	3
Sept.	2104	13	2	69	19	3	151	12	0	2326	5	1
Oct.	2190	12	1	40	10	1	148	7	1	2379	9	3
Nov.	2897	19	3	63	4	3	160	16	2	3122	1	0
Dec	2355	8	3	48	9	3	135	16	3	2539	15	1
Total	28868	4	1	1047	18	0	1825	5	3	31741	8	0

## SEWAGE DISPOSAL.

The following is a brief account of the method of dealing with Blackburn Sewage, for which I am indebted to the Borough Engineer :—

The larger portion of the Sewage of the Borough is collected by gravitation at Witton, where it is screened and passed through catchpits to remove the gravel and rags which have obtained access to the sewers. It then travels to Samlesbury, a distance of  $4\frac{1}{2}$  miles, in duplicate cast-iron pipe syphons and brick tunnels. A portion of the sewage from the low-lying districts is now lifted into the conduits by new electrically-driven centrifugal pumps, situated at Fenisccliffe Bridge. Another main conduit takes the sewage from the Beardwood district to Samlesbury.

On arriving at Samlesbury the sewage is either treated by the bacterial system or by chemical precipitation, with sludge-pressing and land irrigation. The portion undergoing the latter treatment passes through a screen chamber and drives a water-wheel, thus supplying power for mixing the precipitant and driving a dynamo for generating light at the works. About 6grs. per gallon of precipitant is then added, and the sewage enters the tanks, of which ten are now used, each 120ft. x 40ft., six more of which are at present being used as septic tanks in conjunction with the bacteria process. From the precipitation tanks the sewage passes to the land for irrigation, 400 acres being used for this purpose, and the effluent eventually finds its way to the river. The sludge is gravitated to two reservoirs, mixed with lime, and forced by rams actuated by compressed air into sludge presses, which form about 180 tons of cake per week. This is removed by band conveyors, and farmers now readily cart it away. Although a small charge is made for the same, its value as a manure is becoming better recognised in the district.

The portion to be treated bacterially first passes into one of two detritus tanks, and passes then through a divided septic reservoir into the remaining original precipitation beds. The

septicised and sedimented effluent is then treated in two ways—  
 (a) On 24 double contact beds, each 120ft. x 60ft. by 4ft. 6in. deep, filled with graded clinker or iron slag, the effluent from which passes directly to the river; and (b) on to the sprinkler beds. These beds are to be 24 in number, each 80ft. in diameter, constructed of rubble stone, and filled with graded stone and clinker. The septic tank effluent will be distributed over the upper surface of these beds by revolving sprinklers worked by the head of sewage.

Of these 24 beds, seven are now working satisfactorily, and several more are nearly completed.

The effluent from these beds will require a slight further purification in separator tanks. These will be three in number, 26ft. square and 28ft. deep, formed in a cone shape, the sludge from these tanks being run on to three roughing filters filled with rough clinker and fine breeze on the top.

#### WATER SUPPLY.

Blackburn has fortunately an excellent water supply. It is a moorland water, coming from the Brenmand and Whitendale Valleys, about 20 miles from the Borough.



## ANALYSES OF WATER.

I am indebted to Dr. Pickard for the following results:—

TABLE LXXVII.

Typical Analyses of Blackburn Water. All four samples were drawn from the Main at the Technical School.

Date .....	13/2/07	25/6/07	14/10/07	14/1/08
Total Solids in Solution	6.88	6.36	7.04	6.44
Including Volatile Matter	3.80	3.56	3.92	4.00
Chlorides in terms of Chlorine .....	1.0	1.0	1.0	1.0
Saline Ammonia .....	nil	0.0014	0.001	0.001
Organic Ammonia ... ..	0.012	0.013	0.015	0.010
Nitrogen as Nitrates...	0.040	0.053	0.033	0.036
Permanent Hardness ...	3.5	3.12	2.86	3.05
Temporary Hardness ...	0.4	0.26	0.30	0.33

All the results are in parts per 100,000.

Other samples have been analysed during the past year, but the above are representative ones.

I am indebted to the Borough Engineer for the following records of rainfall during 1907 in connection with the Blackburn Corporation Waterworks:—

Table LXXVIII.—RAINFALL at the following Stations in the Counties of Lancaster and York.

DATE.	LANCASHIRE.										WEST RIDING OF THE COUNTY OF YORK.				
	Blackburn Waterworks Office.	Blackburn Corporation Store Yard	Blackburn High Level Pumping Station.	— Witton	Corporation Park.	Guide	Daisy Green.	Pickup Bank	Holtsdon Sewage Works.	Dunsop Houses	Brennand	Whitdale	Cabinhill	Middle Knoll	Baxton Fell
	Elevation 436 (Gauge 60ft. aboveground)	Elevation 373	Elevation 600	Elevation 315	Elevation 550	Elevation 650	Elevation 969	Elevation 720	Elevation 680	Elevation 450	Elevation 820	Elevation 830	Elevation 1559	Elevation 1296	Elevation 1540
1907.															
January	70	1.49	1.81	1.88	1.82	1.37	1.87	1.90	2.02	3.79	4.06	4.58	6.28	3.00	3.00
February	1.27	1.80	2.20	2.46	2.09	1.72	2.29	2.29	2.42	3.53	4.49	5.17	4.04	2.80	3.10
March	2.90	2.67	3.89	4.19	4.05	3.51	4.13	4.06	4.38	7.36	6.92	7.35	8.30	5.10	5.90
April	1.41	2.05	2.06	2.10	2.08	1.92	2.35	2.34	2.50	3.22	3.89	4.37	4.60	3.50	3.20
May	2.84	3.46	3.80	4.14	3.83	4.10	4.38	4.26	4.65	4.46	4.66	4.64	5.10	4.10	4.30
June	5.89	5.48	7.92	8.46	8.35	7.45	8.50	8.46	9.35	10.98	10.53	11.71	11.90	9.60	10.50
July	2.55	2.78	2.95	3.47	3.15	2.69	3.04	2.98	3.04	4.75	4.26	4.05	4.80	3.80	4.10
August	3.94	3.85	4.78	5.03	5.27	4.49	5.06	5.08	5.33	7.96	8.67	8.71	11.00	7.50	7.60
September	.87	.96	1.39	1.63	1.21	1.17	1.32	1.34	1.41	1.42	1.55	1.31	1.80	1.20	1.30
October	2.55	2.52	3.30	3.55	3.17	3.92	4.50	4.49	4.56	5.36	6.64	6.63	8.80	5.30	5.60
November	1.75	1.96	2.53	2.88	2.73	2.54	3.20	3.13	3.42	5.18	5.65	5.45	7.80	4.80	4.80
December	3.24	3.90	4.43	4.65	4.64	4.52	5.29	5.30	5.80	8.15	8.16	8.72	10.40	6.80	8.40
Totals for 1907	29.99	32.92	41.13	44.44	42.39	39.40	45.93	45.63	48.88	66.16	69.48	72.69	84.82	57.50	61.80

AVERAGES FOR TEN GAUGES :—41.05.

AVERAGES FOR SIX GAUGES :—68.74.



## BLACKBURN CORPORATION WATER WORKS.

## Consumption of Water for the Year 1907.

Month.	Fish Moor Reservoir.	Audley Reservoir.	Guide Reservoir.	Bowland Works.	Total.
January ...	83,000,000	13,050,000	11,086,000	1,130,000	108,266,000
February .	74,250,000	12,270,000	9,507,000	1,220,000	97,247,000
March .....	76,750,000	12,870,000	10,120,000	1,150,000	100,890,000
April ....	76,410,000	11,830,000	10,018,000	1,210,000	99,468,000
May.....	81,870,000	12,540,000	9,952,000	1,290,000	105,658,000
June.....	80,950,000	12,510,000	9,412,000	1,126,000	103,998,000
July .....	80,550,000	13,030,000	10,506,000	1,084,000	111,774,000
August ...	78,720,000	12,800,000	9,651,000	1,050,000	102,221,000
September	80,740,000	14,050,000	10,049,000	1,334,000	106,773,000
October ...	81,190,000	11,420,000	10,357,000	1,306,000	104,273,000
November..	73,210,000	10,590,000	9,329,000	1,148,000	94,277,000
December..	74,590,000	11,060,000	10,168,000	1,116,000	96,934,000
	948,230,000	149,220,000	120,155,000	14,170,000	1,231,775,000

## Analysis of Water Consumption.

	Business by Meter.	Miscellaneous Business, Stables, Watering Streets, etc.	Domestic and Waste.	Total.
Annual Consumption	397,685,840	151,042,110	683,047,050	1,231,775,000
Average Daily Consumption	1,089,550	413,814	1,871,361	3,374,725
Daily Consumption per Head	7.89	3.00	13.56	24.45

## Consumption of Water from 1892.

Year.	Quantity.	Year.	Quantity.
1892	1,101,890,000	1900	1,253,964,000
1893	1,186,000,000	1901	1,121,287,000
1894	1,138,890,000	1902	1,172,240,000
1895	1,287,465,000	1903	1,216,475,000
1896	1,202,346,000	1904	1,251,011,000
1897	1,191,272,000	1905	1,218,226,000
1898	1,222,664,000	1906	1,240,443,000
1899	1,350,864,000	1907	1,231,775,000

## DISINFECTANTS.

The following quantities of Disinfectants have been used during 1907 :—

1. Chloros, 1,191 gallons.
2. Chloride of Lime, 5 tons, 14 cwts
3. Sanitary Dry Lime. 5,120, 7lb. bags.
4. Carbolic Powder. 105 gross, 1lb. dredgers.

The total cost of the above Disinfectants was £280 10s. 2d.

## HOUSE DRAINAGE.

There has been a continuance of the special attention to house drains, and one Inspector devotes his whole time to this work.

Instances of various conditions of defective drainage, which are constantly being remedied by the Health Department, were given in my Annual Report for 1906.

An interesting scheme is on foot whereby 31 firms engaged in manufacturing sanitary pipes in Lancashire and Yorkshire, having realised the danger to public health arising from the use of pipes of a very inferior and defective quality, have agreed among themselves that no defective pipe, junction, or bend shall be sold unless it is marked by a black band all round the pipe, so that it cannot escape attention. These manufacturers have also agreed that no damaged or defective trap, gully, interceptor, or channel syphon shall be sold under any circumstances, but shall be broken up immediately a defect is found.

It is to be hoped that this scheme will receive support.

During the year 1907, 464 drains were inspected, necessitating the application of the smoke-test in 651 cases and of the water test in 603 cases.



340 drains were found defective, and of these, 240 were re-laid throughout and stood the water-test. 20 drains were partly re-laid and stood the water-test. Also 49 were partly re-laid and passed on examination owing to short lengths.

The instances of defective drains not re-laid at the end of December, 1907, were 31.

During the re-laying and repairing of drains 1,231 visits were made, including 603 water-tests.

The drains not re-laid or other work outstanding on December 31st, 1906, were 87; and of these 73 have been re-laid and the work carried out satisfactorily during the early part of 1907, in addition to the above-named work.

The following statement shows in detail the drainage work which has been carried out during the year 1907 :—

No. of Drains inspected .....	464
„ Drains tested on account of Typhoid Fever ...	61
„ Drains tested on account of Diphtheria .....	147
„ Drains tested owing to Complaints .....	90
„ Drains tested at the request of owners or new tenants .....	31
„ Drains tested owing to other causes .....	135
„ Letters from the Medical Officer of Health...	270
„ Preliminary notices served .....	33
„ Legal notices served .....	46
„ Cases in which work carried out by verbal arrangements .....	37
„ Visits to work in progress .....	1231
„ Drains tested (a) smoke .....	651
„ „ (b) water .....	603
„ Drains examined apart from above (a and b) by breaking down .....	57
„ Drains traced for leakage with coloured solution .....	91



No. of Drains found defective .....	340
„ Drains tested and found not defective .....	124
„ Drains re-laid throughout which stood the water-test .....	240
„ Drains partly re-laid which stood the water- test (short length) .....	20
„ Drains partly re-laid and passed on examina- tion (short length) .....	49
„ Defective drains not re-laid at the end of December, 1907 .....	31
„ Drains opened and cleansed (not re-laid).....	8
„ Defective gullies replaced .....	271
„ New lip dishstones provided .....	281
„ Inspection chambers provided .....	71
„ Slop-water closet drains opened and cleansed.	17
„ Downspouts repaired .....	170
„ Soil-pipes replaced or repaired .....	45
„ Surface of yards flagged after drains re-laid.	60
„ Surface of yards repaired after drains re-laid.	108
„ Pail-closets converted to w.c.'s .....	33
„ Sink-pipes repaired .....	115
„ Useless drains removed from cellar premises...	5
„ Slop-water closets converted to pedestal wash- downs .....	10
„ Flushing apparatus repaired .....	75
„ New pedestal wash-downs provided .....	31

#### LODGING-HOUSE ACCOMMODATION.

During 1905 a special report dealing with the existing common lodging-house accommodation, and with the provision of a municipal artisans' dwelling in Blackburn, was prepared at the request of the Health Committee.

Plans were prepared, on the principle of the Rowton Houses, by the Borough Engineer.

On June 17th, 1907, the Health Committee adopted the following resolution of the Health Sub-Committee:—" That

they have considered as to the erection of a Municipal Artisans' Dwelling in Penny-street, and have before them further information from other towns respecting income and expenditure, and recommend that the erection of such dwelling be proceeded with in accordance with the plans prepared by the Borough Engineer."

This resolution was referred back at a meeting of the Town Council held on July 4th, 1907.

Particulars respecting the Common Lodging-Houses will be found at the end of this report. Some of these require alterations.

Full particulars respecting Houses Let in Lodgings were given in my Annual Report for 1906.

### HOUSING OF THE WORKING CLASSES ACT, 1890.

On August 22nd, 1907, the Health Committee received a deputation from the Blackburn and District Trades and Labour Council and various Organisations, who urged the erection by the Town Council of dwelling-houses under Part III. of the Housing of the Working Classes Act, 1890.

After hearing the deputation, the Health Committee decided that it should be referred to a Special Sub-Committee to consider and report on the following :—

- (1) Any overcrowding of dwelling-houses in the Borough.
- (2) Any difficulty experienced in obtaining dwelling-houses.
- (3) The cost and descriptions of dwelling-houses for the erection of which the Local Government Board would sanction a loan.

- (4) The interest and sinking-fund charges and other outgoings payable in respect of such dwelling-houses, and the rents obtainable for the same.
- (5) Any other information the Sub-Committee may deem necessary to enable the Committee to consider the question urged by the deputation.

Since September, 1907, inquiries have been made concerning references 1, 2 and 5 by the staff of the Health Department, and the results will be presented to the Health Committee at their monthly meeting in March, 1908.

### INSANITARY PROPERTY.

Houses ordered to be closed :—

1 to 13, Little Peel Street  
 13, Jack Croft  
 58 to 62, Chapel Street  
 107 and 109, King Street  
 1, Buxton Street  
 No. 1 House, No. 9 Court, Redlam.  
 35, Thomas Street.  
 3 and 5, Leyland Street.  
 2 and 4, Kirkham Lane.

Houses ordered to be altered to the satisfaction of the Medical Officer of Health, or closed :—

116, Whalley New Road.  
 2 to 8, Gate Street.  
 35a and 37, Ordnance Street.  
 21 to 25, Dale Street.  
 3 to 9, Buxton Street  
 10 to 14, Wood Street  
 117, Anvil Street  
 31 John Street and 19, Brown Street.

## Houses demolished :—

10 and 14, Larkhill.

9, 11, 21, 23, 126, Union Buildings

13, Back Swarbrick Street.

## SYSTEMATIC INSPECTIONS.

The Local Government Board require that the Medical Officer of Health, in reporting his proceedings and advice, should put on record whether he has made systematic inspections of his district. By “systematic inspections” are meant inspections independent of such inquiries as the Medical Officer of Health may have to make into particular outbreaks of disease, or into unwholesome conditions to which his attention has been specially called by complaints or otherwise ; and such inspections will include the house-to-house inspections which may be necessary in particular localities.

In the Annual Report for 1903 a statement was made, giving a description of the four districts into which the Borough has been divided, so that one of the four District Inspectors could be attached to each.

For census purposes the Borough has been divided into three districts, namely, Northern, Southern, Witton and Livesey.

Each of these three districts has been divided into Enumeration Districts (see Map). Thus the Northern Division has been divided into 60 Enumeration Districts. the Southern Division into 49 Enumeration Districts. and Witton and Livesey Division into 21 Enumeration Districts.

Such an arrangement greatly facilitates not only the systematic inspections. but also the keeping of records.

The following is a statement of the systematic inspections which have been carried out by the four District Inspectors

during 1907. In addition, of course, large numbers of visits have been made in answer to complaints received, and also in reference to compulsorily notifiable and voluntarily notifiable infectious diseases.

### DISTRICT No. 1.

#### ENUMERATION DISTRICT.—11 SOUTHERN.

Name of street.	No. of houses inspected.
1 to 45 Oxford Street .....	23

#### ENUMERATION DISTRICT.—23 SOUTHERN.

74 to 172 Bottomgate .....	50
2 to 6 St. Clement Street .....	3
80 to 88 St. Clement Street .....	5
1 to 15 St. Clement Street .....	8
1 to 19 Barnes Street .....	10
2 to 30 Furthergate .....	15
2, 4 and 92 Cherry Street .....	3

#### ENUMERATION DISTRICT.—24 SOUTHERN.

11 to 137 Cherry Street .....	23
323 to 337 Audley Range .....	8
32 to 66 Furthergate .....	18
2 to 156 Accrington Road .....	78
1 Croston Street .....	1
19 to 69 Longton Street .....	26

#### ENUMERATION DISTRICT.—25 SOUTHERN.

114 to 192 Audley Range .....	40
79 to 165 Walter Street .....	44
1 to 25 May Street .....	13
2 to 28 June Street .....	14
1 to 29 July Street .....	15

## DISTRICT No. 2.

## ENUMERATION DISTRICT.—39 NORTHERN.

Name of street.	No. of houses inspected.
1 and 3 Oak Street .....	2
215 to 253 Whalley Range .....	20
1 to 13 Cedar Street .....	7
91 to 101 Whalley New Road .....	6
2 to 10 Baywood Street .....	5

## ENUMERATION DISTRICT.—60 NORTHERN.

1 to 13 Cob Wall .....	7
2 to 8 Plane Street .....	4
13 to 43 Plane Street .....	16
44 to 62 Ash Street .....	10
1 to 15 Beech Street .....	8
3 to 31 Maple Street .....	15
4 to 44 Maple Street .....	21
2 to 30 Pine Street .....	15

## ENUMERATION DISTRICT.—2 NORTHERN.

1, 2, 3, 4, 5 Paddock .....	5
1, 2, 3, 4, 5 to 18 Court Fold .....	18
59 to 137 Shear Brow .....	40
231 to 235 Shear Brow .....	3
317 to 335 Shear Brow .....	10
230 to 252 Shear Brow .....	12

## ENUMERATION DISTRICT.—7 NORTHERN.

76a, 76b Dukes Brow .....	2
78 to 172 Dukes Brow .....	47
167 to 177 Dukes Brow .....	6
1 to 37 Alexandra Road .....	19
1 to 21 Edgeware Road .....	11
14 to 20 Albany Road .....	4
108 Revidge Road .....	1
154 to 160 Revidge Road .....	4



## ENUMERATION DISTRICT.—40 NORTHERN.

Name of street.	No. of houses inspected.
3 to 69 Bastwell Road .....	34
2 to 32 Hickory Street .....	16
40 to 68 Hickory Street .....	15
1 to 47 Hickory Street .....	24

## ENUMERATION DISTRICT.—58 NORTHERN.

152 to 198 Harwood Street .....	24
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## DISTRICT No. 3.

## ENUMERATION DISTRICT.—7 WITTON &amp; LIVESEY.

16 to 52 Mill Hill Street .....	36
54 to 62 Mill Hill Street .....	5
1 to 13 Young Street .....	7
2 to 22 Young Street .....	11
1 to 31 Penzance Street .....	16
16 to 38 Watson Street .....	11
2 to 12 Bowen Street .....	6
43 to 63 Queen Victoria Street .....	11
2 to 30 Queen Victoria Street .....	15
32 to 52 Queen Victoria Street .....	26
65 to 77 Queen Victoria Street .....	7
1 to 35 Queen Victoria Street .....	18
2 Lindley Street .....	1
1 to 5 Brook Street .....	3
1 to 17 Lindley Street .....	8

## ENUMERATION DISTRICT.—43 SOUTHERN.

25 to 39 Sandon Street .....	8
2 to 62 Sandon Street .....	31
2 to 64 Montrose Street .....	33

Name of street.	No. of houses inspected.
1 to 63 Montrose Street .....	32
2 to 22 Longfield Street .....	11
11 to 25 East Street .....	8
2 to 26 East Street .....	13
2 to 30 East Street .....	15
1 to 31 Hardman Street .....	15
2 to 60 Stansfeld Street .....	31
68 to 120 Stansfeld Street .....	27
1 to 49 Coleridge Street .....	25
4 to 38 Coleridge Street .....	18
2 to 28 Norman Street .....	14

#### ENUMERATION DISTRICT.—42 SOUTHERN.

2 to 10 Throstle Street .....	5
2 to 18 Turner Street .....	9
1 to 13 Turner Street .....	7
1 to 21 George Street West .....	11
10 to 16 Wood Street .....	4
1 to 7 Buxton Street .....	4
3 to 65 Wensley Street .....	32
1 to 17 Pump Street .....	9
90 to 96 Whalley Banks .....	4
2 to 22 Bank Top .....	11
4 Foundry Street .....	1

#### ENUMERATION DISTRICT.—5 WITTON & LIVESEY.

2 to 36 Belgrave Street .....	18
38 to 62 Belgrave Street .....	13
64 to 72 Belgrave Street .....	5
59 to 65 Lansdowne Street .....	4
87 to 119 Witton Parade .....	17
1 to 51 Witton Parade .....	26
2 to 28 Witton Parade .....	14
30 to 60 Witton Parade .....	16
2 to 8 Greenfield Street .....	4
1 to 35 St. Philip Street .....	18
2 to 38 St. Philip Street .....	19

## ENUMERATION DISTRICT.—44 SOUTHERN.

Name of street.	No. of houses inspected.
2 to 44 Lyon Street .....	22
7 to 27 Lyon Street .....	11
1 to 19 Hamlet Street .....	10
2 to 18 Hamlet Street .....	9
2 to 24 Radcliffe Street .....	12
1 to 29 Radcliffe Street .....	15
2 to 6 Lord Byron Street .....	3
8 to 32 Lord Byron Street .....	14
2 to 18 Wellesley Street .....	9
2 to 24 Shakespeare Street .....	12

## ENUMERATION DISTRICT.—49 NORTHERN.

7 to 31 Ashworth-street .....	13
33 to 75 Ashworth Street .....	22
2 to 24 Ashworth Street .....	12
26 to 78 Ashworth Street .....	27
2 to 32 Hazel Street .....	16
34 to 60 Hazel Street .....	14
62 to 78 Hazel Street .....	7
1 to 47 Hazel Street .....	24
15 to 57 Henrietta Street .....	22
2 to 68 Henrietta Street .....	34
8 to 58 Lawrence Street .....	26
43 to 95 Addison Street .....	27
2 to 48 Arthur Street .....	24

## DISTRICT No. 4.

## ENUMERATION DISTRICT.—34 NORTHERN.

34 to 78 Freckleton Street .....	23
21 to 51 Clifton Street .....	16
39 to 49 Canterbury Street .....	6
20 to 58 Clifton Street .....	20
1 Islington .....	1
1 to 9 Dean Street .....	5

Name of street.	No. of houses inspected.
14 to 26 Summer Street .....	7
13 to 33 Freckleton Street .....	11
2 to 6 Islington .....	3
4 to 16 Canterbury Street .....	7
5 to 13 Canterbury Street .....	5

#### ENUMERATION DISTRICT.—32 SOUTHERN.

6 to 10 Mosley Street .....	3
1 to 29 Swan Street .....	11
2 and 4 Paterson Street .....	2
2 to 10 Grimshaw Park .....	5
2 to 10 St. Ann Street .....	5

#### ENUMERATION DISTRICT.—33 SOUTHERN.

36 to 62 Highfield Road .....	14
38 to 100 Mosley Street .....	32
137 to 159 Mosley Street .....	12
1, 2 and 4 Grove Street .....	3
41 Hall Street .....	1
40 to 62 Abraham Street .....	12
29 and 31 Abraham Street .....	2
43 to 75 Hall Street .....	17
2 to 36 Vale Street .....	18

#### ENUMERATION DISTRICT.—34 SOUTHERN.

40 to 48 Hall Street .....	5
161 to 187 Mosley Street .....	14
85 Infirmary Street .....	1
64 to 96 Abraham Street .....	17
44 to 78 Hall Street .....	18
1 to 39 Leach Street .....	20
2 to 40 Leach Street .....	20

#### ENUMERATION DISTRICT.—30 SOUTHERN.

61 to 91 Mosley Street .....	16
2 to 24 Unity Street .....	12

Name of street.	No. of houses inspected.
3 to 25 Alaska Street .....	12
43 to 67 Highfield Road .....	13
2 to 28 Highfield Road .....	14
45 to 59 Mosley Street .....	8
1 to 11 Unity Street .....	6
2 to 16 William Street .....	8
2 to 12 Robert Street .....	6
1 and 1a Robert Street .....	2
2 Proctor Street .....	1
12 to 44 York Street .....	17
13 to 23 York Street .....	6
1 to 25 Frederick Street .....	13
2 to 8 Rockcliffe Street .....	4
4 to 24 Proctor Street .....	11

#### DEATH-RATES IN THE ENUMERATION DISTRICTS.

It is interesting to compare the annual death-rates in the various Enumeration Districts of the Borough.

They vary from 7.2 in District No. 40 of the Northern Division and 7.3 in District No. 11 of the Witton and Livesey Division to 64.4 in District No. 1 of the Southern Division. (This district, however, contains the Larkhill Street Common Lodging-House). The next highest rate occurred in No. 2 District of the Southern Division, namely, 35.9 per 1,000.

#### ECONOMIC VALUE OF A REDUCED DEATH-RATE.

It has been shown that each member of the community has a definite money value based upon the power of earning wages.

The value in the case of each male has been estimated by taking as the standard a labourer, and capitalising the wages earned by him, the means of subsistence being deducted.

The average net value of each male life is found to be £150. Assuming that one-half of the 203 lives gained in 1907, on the average of the previous ten years, were males, there would be a net gain to the wealth of the community of £15,150.

Assuming also that the remaining 101 female lives were also equal to a certain money value, the net gain would exceed this sum.



TABLE LXXIX.

NAME OF DISEASE	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	Average 1897 to 1906	1907
Cancer .....	0.57	0.74	0.63	0.77	0.71	0.69	0.70	0.81	0.85	0.80	0.72	0.84
Diarrhoea .....	1.19	1.59	0.87	1.33	1.04	0.53	0.76	0.94	0.70	1.28	1.02	0.41
Respiratory Diseases..	4.13	3.70	4.65	4.95	3.82	3.56	3.41	3.79	3.10	2.73	3.78	3.73
Measles .....	1.14	0.38	0.31	0.59	0.73	0.58	0.40	0.45	0.31	0.47	0.53	0.33
Erysipelas .....	0.04	0.04	0.03	0.02	0.02	0.02	0.007	0.02	0.01	0.06	0.02	0.02
Diphtheria .....	0.04	0.25	0.58	0.71	0.48	0.17	0.19	0.08	0.24	0.19	0.29	0.12
Scarlet Fever .....	0.05	0.12	0.10	0.65	0.45	0.22	0.09	0.09	0.57	0.24	0.25	0.15
Typhoid Fever .....	0.28	0.23	0.31	0.23	0.13	0.17	0.11	0.15	0.11	0.10	0.18	0.09
Whooping Cough .....	0.64	0.03	0.41	0.41	0.17	0.17	0.10	0.72	0.08	0.12	0.28	0.30
Old Age .....	0.95	0.77	0.98	0.75	0.77	0.82	0.96	1.15	1.04	1.07	0.92	1.19
Influenza .....	0.30	0.19	0.23	0.64	0.15	0.20	0.20	0.12	0.15	0.16	0.23	0.32
Premature Birth .....	0.56	0.61	0.67	0.74	0.53	0.53	0.63	0.60	0.50	0.53	0.59	0.57
Nervous Diseases .....	1.97	2.21	1.98	2.07	1.79	1.55	1.41	1.44	1.52	1.71	1.76	1.62
Digestive Diseases .....	1.69	2.59	1.83	1.22	1.13	0.73	0.56	0.59	0.63	0.58	1.15	0.63
Urinary Diseases ...	0.35	0.33	0.48	0.51	0.54	0.46	0.44	0.52	0.58	0.32	0.45	0.60
Phthisis .....	1.19	1.22	1.20	1.16	1.17	1.25	0.93	0.94	1.06	0.92	1.10	0.98
Heart Diseases .....	1.45	1.29	1.41	1.32	1.25	1.28	1.44	1.47	1.16	1.39	1.34	1.47
Other Tubercular Diseases (excluding Tabes Mesenterica)	0.28	0.22	0.35	0.39	0.41	0.57	0.48	0.34	0.42	0.44	0.39	0.39
Tabes Mesenterica ...	0.43	0.27	0.15	0.37	0.27	0.18	0.21	0.30	0.20	0.25	0.26	0.26
Ill-defined .....	1.29	1.63	1.46	1.43	0.85	0.94	0.57	0.37	0.85	0.63	1.00	0.63
Violence .....	0.42	0.40	0.57	0.55	0.52	0.47	0.45	0.43	0.45	0.51	0.47	0.52

Table showing gains and losses in the death-rate per 1000 persons living in the year 1907, as compared with the average rate of ten years 1897-1906 :—

**TABLE LXXX.—GAINS.**

NAME OF DISEASE.	Average rate during 10 years, 1897-1906.	Rate during 1907.	Gains per 1000.	Probable No. of lives gained.
All Causes .....	18.47	17.05	1.42	203
Diarrhœa .....	1.02	0.41	0.61	87
Respiratory Diseases..	3.78	3.73	0.05	7
Measles .....	0.53	0.33	0.20	28
Erysipelas .....	0.02	0.02	0.00	0
Diphtheria .....	0.29	0.12	0.17	24
Scarlet Fever .....	0.25	0.15	0.10	14
Typhoid Fever ...	0.18	0.09	0.09	13
Premature Birth ...	0.59	0.57	0.02	3
Nervous Diseases ..	1.76	1.62	0.14	20
Digestive Diseases ..	1.15	0.63	0.52	75
Phthisis .....	1.10	0.98	0.12	17
Other Tubercular Diseases excluding Tabes Mesenterica .....	0.39	0.39	0.00	0
Tabes Mesenterica ...	0.26	0.26	0.00	0
Ill-defined .....	1.00	0.63	0.37	53
Gross Gains ...	...	...	2.39	341

**LOSSES.**

NAME OF DISEASE.	Average rate during 10 y'rs 1897-1906	Rate during 1907.	Losses per 1000	Probable No. of lives lost
Cancer .....	0.72	0.84	0.12	17
Whooping Cough .....	0.28	0.30	0.02	3
Old Age .....	0.92	1.19	0.27	38
Influenza .....	0.23	0.32	0.09	13
Urinary Diseases .....	0.45	0.60	0.15	21
Heart Diseases .....	1.34	1.47	0.13	19
Violence .....	0.47	0.52	0.05	7
Other Diseases .....	1.74	1.88	0.14	20
Gross Losses ...	...	...	0.97	138

Nett gain 1.42 or 203 lives.

The death of a person in a population of 134,438 corresponds to a rate of 0.007 per 1000. Hence the saving or loss of a rate of:—0.007 means the saving or loss of one human life.

similarly	0.035	„	„	„	five	„	lives
and	0.070	„	„	„	ten	„	„
therefore	1.420	„	„	„	203	„	„

# BLACKBURN UNION. Poor Law Relief Statistics.

## TABLE LXXXI.

	Half-year ended Lady Day, 1907.	Half-year ended Mich'lmas, 1907.	Total.
	£ s. d.	£ s. d.	£ s. d.
Cost of Out-door relief in Township of Black- burn .....	4124 3 0	3761 17 8	7886 0 8
	Persons in receipt of relief on July 1, 1907	Persons in receipt of relief on Jan. 1, 1908	
Males .....	267	246	
Females .....	656	625	
Children .....	267	251	
Total .....	1190	1122	

Statement of the number of Indoor Paupers relieved in the Blackburn Union Workhouse.

	Persons in receipt of relief on July 1, 1907	Persons in receipt of relief on Jan. 1, 1908	Total.
Able-bodied .....	183	244	
Not Able-bodied .....	326	329	
Insane.....	95	97	
Children .....	28	32	
Totals .....	632	702	
Numbers included in above statement who were inmates of the Workhouse Infirmary	130	180	
Children in Cottage Homes .....	83	87	
	Half-year ended Lady Day, 1907.	Half-year ended Mich'lmas, 1907	
Vagrants ... ..	8160	7493	15653

I am indebted to Mr. C. E. Bygrave for these figures, which have an indirect bearing upon the health conditions and statistics of the town.

In November, 1905, a Royal Commission on "The Poor Laws and Relief of Distress" was appointed to inquire:—

- (1) Into the working of the laws relating to the relief of poor persons in the United Kingdom.
- (2) Into the various means which have been adopted outside the Poor-laws for meeting distress arising from want of employment—particularly during periods of severe industrial depression—and to consider and report whether any, and if so what, modification of the Poor-laws or changes in their administration, or further legislation for dealing with distress are advisable.

In January, 1907, I gave evidence before this Royal Commission at the Home Office, and described the measures for the Medical Assistance of the Poor in Blackburn, as carried out by the Health Authority. These measures are associated with the following:—

- (1) Compulsorily notifiable infectious diseases.
- (2) Voluntarily notifiable infectious diseases.
- (3) Visits to homes where births have occurred.
- (4) Distribution of diarrhoea handbills.
- (5) Systematic house-to-house inspection, apart from the above.
- (6) Other special investigations, e.g., under-feeding.
- (7) Other work carried out for the Education Committee.

Respecting infectious diseases, these measures include the removal of cases of Scarlet Fever, Typhoid Fever, and Diphtheria to the Fever Hospital; the removal of cases of Small-

pox to the Finnington Hospital, disinfection of the homes, regular visitation of houses in which cases of Scarlet Fever, Typhoid Fever, and Diphtheria are nursed at home.

The measures also include the free supply of anti-toxin for all cases of Diphtheria occurring amongst the poorer rate-payers, and also the free supply of serum for cases of Puerperal Fever.

I stated also that in my opinion the administration of the Vaccination Acts should be transferred from Boards of Guardians to Local Sanitary Authorities, as vaccination at present is the only preventive measure against Smallpox which is not in the hands of the Sanitary Authorities. It is also worthy of consideration whether Registrars of Births and Deaths should not be responsible to the Local Sanitary Authorities.

I also stated that in my opinion the primary functions of Sanitary Authorities should be the prevention rather than the cure of disease.

There are still so many problems which require investigation by Medical Officers of Health in the prevention of disease, that it appears desirable that their present work should be extended in this direction rather than in the cure of disease individually.

As instances, I need only mention the Medical Inspection of School Children for the detection of diseased conditions, the Supervision of Midwives, and the need for ascertaining more closely various conditions which may lead to a high infantile mortality rate.

## METEOROLOGICAL OBSERVATIONS.

The Meteorological Station is situated on an open site in the Corporation Park.

Daily readings of each instrument are taken at 9 a.m. These instruments are :—

- 1.—Maximum Thermometer (Phillips's).
- 2.—Minimum Thermometer (Rutherford's).
- 3.—Hygrometer.
- 4 and 5.—Black and Bright Bulb Thermometers for Solar Radiation.
- 6.—Spirit Thermometer for Terrestrial Radiation.
- 7 and 8.—1 ft. and 4 ft. Earth Thermometers.
- 9.—Rain Gauge.
- 10.—Anemometer.
- 11.—Sunshine Recorder.
- 12.—Barometer (Fortin), kept at the Health Office.

A full description of the above instruments appeared in my Annual Report for 1903.

The total rainfall for 1907 was 42.39 inches, compared with 43.02 inches during 1906.

During 1907 rain fell on 230 days, compared with 243 in 1905.

The wettest month of 1907 was June, when there were nearly 8.35 inches of rainfall. This is very unusual.

The highest reading of the 4 ft. Thermometer during 1907 was 55.2 deg. F. on August 1st and 2nd.

Also during 1907 there were 89 days without any bright sunshine, compared with 87 days during 1906.



TABLE LXXXII.—METEOROLOGICAL REPORT FOR THE YEAR 1907.

	Mean Pressure		Mean Relative Humidity.	Mean of Maximum and Minimum Temperature.	Mean Temperature at 9 a.m. Readings	Under-ground Temperature		Mean Black Bulb in Vacuo.	Mean Bright Bulb in Vacuo.	Absolute extremes of Temperature.				Mean depression of minimum on grass below minimum in the shade.	Total bright sunshine.	Most sunshine in one day.		Direction of the Wind.						Mean daily movement of wind.	Total rainfall.		
	Station Level.	Sea Level.				Highest.	Lowest.			Date.	Date.	Am't.	Date			N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.				
	inches	inches	%	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	hrs. min.	hrs. min.									Miles.	Inchs.		
January	29.915	30.304	91.8	37.0	37.08	38.2	41.7	51.8	44.2	49.0	1st	17.5	25th	3.6	38—45	7—0	30th	0	0	3	0	5	515	3	198.3	1.82	
February	29.642	29.999	90.3	35.5	31.1	35.5	39.1	53.4	46.8	51.0	15th	22.5	23rd	4.9	80—27	8—20	22nd	1	1	3	2	2	510	4	202.6	2.09	
March ...	29.678	30.162	85.0	42.49	42.01	40.02	40.53	64.6	53.0	64.0	31st	20.0	12th 24th	5.3	134—37	10—20	31st	1	3	0	0	3	12	9	3	204.5	4.05
April .....	29.418	29.787	78.1	43.95	44.5	44.2	43.7	88.3	62.03	61.5	2nd	28.0	18th	5.0	119—53	10—35	18th	0	3	9	2	1	3	7	5	185.3	2.08
May .....	29.504	29.874	77.4	48.35	48.2	49.02	47.01	93.9	67.3	71.5	12th	33.0	21st	4.3	128—25	12—0	29th	1	6	3	4	6	1	8	2	194.9	3.83
June ...	29.431	29.776	83.7	51.8	55.4	52.5	50.08	97.2	69.3	72.0	9th	38.5	25th	4.1	104—6	10—0	22nd	0	1	1	0	5	10	13	0	216.0	8.35
July .....	29.673	30.012	79.1	55.55	56.1	56.7	53.06	102.8	75.5	76.0	17th	40.0	1st	6.8	188—14	14—0	17th	2	5	2	2	4	6	9	1	129.8	3.15
August ...	29.585	29.926	82.5	54.85	52.6	56.1	54.7	102.3	73.4	67.0	13th	41.0	30th	4.6	127—20	9—55	30th	0	0	0	0	3	6	19	3	203.6	5.27
September	29.781	30.127	80.05	55.65	55.8	51.5	53.8	93.3	73.05	71.0	25th	35.5	4th 42.03	6.57	114—10	10	10th	3	3	3	2	7	2	8	2	129.8	1.21
October...	29.257	29.611	86.5	48.15	48.1	49.9	51.8	76.2	60.0	62.0	1st	34.0	16th 24th	4.5	87—5	8—10	4th	0	4	9	4	7	6	0	1	191.8	3.17
November	29.583	29.961	87.2	42.7	42.4	41.7	47.9	63.7	52.03	54.5	2nd 8th	28.5	26th 30th	5.1	52—10	7—25	15th	2	3	6	0	9	3	3	4	166.6	2.73
December	29.305	29.668	90.1	38.75	38.8	40.07	43.8	52.04	44.4	50.0	20th	29.0	15th	4.6	26—25	3—40	3rd	1	1	9	1	7	8	3	1	232.9	4.64

TABLE LXXXIII. - TOTAL AMOUNT OF BRIGHT SUNSHINE RECORDED ON EACH DAY DURING 1906.

MONTH.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total for each Month.	
	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	
January .....	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 40	0 0	0 0	3 10	0 45	0 10	0 3	1 20	0 0	3 5	0 0	1 30	6 10	0 0	0 0	1 10	0 0	0 0	0 0	2 45	1 15	0 12	22 15	
February.....	0 10	0 45	5 30	4 10	6 10	0 0	3 10	0 15	7 5	0 0	2 30	5 40	0 0	4 10	3 20	1 0	1 5	4 30	0 0	5 0	6 15	0 45	4 15	0 0	3 45	3 20	0 0	0 0	.....	.....	.....	72 50	
March.....	0 0	0 0	7 30	6 20	1 15	0 0	2 0	2 5	1 0	0 0	0 0	7 36	6 5	6 55	0 0	0 0	7 10	7 0	4 45	1 45	6 0	7 0	8 30	2 5	8 50	5 50	2 10	8 0	7 30	0 15	1 35	119 11	
April .....	0 0	8 10	9 20	9 15	0 45	7 50	7 45	0 15	9 15	10 0	9 45	4 15	5 30	11 45	8 30	5 10	4 30	11 30	7 20	3 10	0 10	7 20	5 0	6 10	7 10	1 0	4 30	4 35	5 30	1 0	....	176 35	
May.....	8 30	0 0	5 15	3 30	2 45	0 10	1 15	0 0	3 30	3 10	0 10	0 30	8 0	2 10	6 50	2 45	0 40	5 20	0 0	0 50	3 15	0 40	0 20	5 15	3 0	0 0	0 10	1 15	1 30	2 15	6 30	79 30	
June.....	2 55	7 15	4 20	12 45	11 50	12 30	2 0	13 50	12 40	3 0	12 10	10 40	0 0	1 40	5 10	3 30	2 0	6 10	10 40	5 40	0 50	0 0	7 40	4 30	0 0	1 0	7 0	2 30	7 0	11 10	...	183 15	
July.....	9 40	0 0	9 25	11 30	7 40	3 50	8 50	8 20	8 30	1 30	12 0	7 50	0 0	7 0	6 10	0 0	2 10	3 10	10 50	13 10	1 0	2 0	0 40	11 30	8 10	12 50	1 10	2 35	5 0	7 30	7 10	191 10	
August .....	3 50	1 30	9 0	4 20	8 50	9 20	9 0	0 0	5 50	1 0	1 50	0 0	3 30	6 35	6 5	3 15	1 30	1 30	7 0	0 20	0 15	8 40	6 10	5 15	5 50	0 0	8 50	9 50	10 15	10 45	10 55	161 0	
September .....	11 20	11 35	0 50	8 0	4 20	6 50	0 0	4 30	8 10	10 30	8 0	0 0	0 40	5 0	7 20	3 30	4 30	6 0	2 0	1 0	7 20	1 30	1 10	6 0	5 10	5 0	8 30	6 30	6 0	5 5	.....	156 50	
October .....	1 40	0 20	4 50	0 0	0 30	1 0	0 30	4 35	0 0	1 50	0 0	0 15	6 50	4 10	1 0	0 35	3 0	0 0	1 30	4 55	0 30	2 20	2 50	5 0	7 15	0 0	1 30	0 10	1 15	0 0	0 0	58 5	
November .....	0 0	0 0	2 15	1 35	1 30	4 0	0 10	0 0	3 0	1 30	0 0	0 40	0 0	0 0	0 15	0 0	0 0	0 0	0 0	0 55	2 15	0 0	0 0	3 30	3 25	0 0	0 0	0 0	0 0	0 25	1 30	...	26 55
December .....	5 30	0 0	3 30	0 0	1 0	0 35	1 0	0 0	6 30	5 40	0 0	0 0	1 10	0 55	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	5 10	4 5	3 30	0 0	0 25	0 0	0 0	39 0	

TABLE LXXXIV. - TOTAL AMOUNT OF BRIGHT SUNSHINE RECORDED ON EACH DAY DURING 1907.

MONTH.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total for each Month.
	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
January .....	0 0	0 0	0 35	4 0	0 0	0 0	0 0	0 0	0 0	0 0	2 0	0 0	3 0	0 0	1 5	0 0	0 0	4 0	0 0	0 0	0 40	0 35	2 20	0 0	0 0	5 0	0 0	0 0	3 0	7 0	5 30	38 45
February .....	0 0	3 0	4 30	0 0	6 0	1 15	5 20	0 0	3 0	1 10	6 30	0 0	6 55	0 0	1 10	4 30	1 50	0 7	0 0	0 20	6 30	8 20	7 32	0 0	0 0	0 0	7 30	5 0	...	.....	...	80 27
March .....	0 0	0 25	7 0	6 10	1 0	6 50	0 30	2 10	0 30	5 5	7 40	0 7	3 0	5 0	2 20	0 0	0 0	0 0	0 20	6 15	8 50	7 0	8 0	2 5	7 20	6 0	7 10	6 50	7 50	8 50	10 20	134 37
April .....	9 15	7 50	3 30	2 20	4 50	6 10	0 50	1 15	4 30	2 10	1 0	2 0	0 3	3 10	5 50	0 40	6 45	10 35	1 15	1 45	0 5	8 0	0 0	8 50	7 30	5 5	4 0	2 50	7 50	0 0	...	119 53
May .....	9 20	5 15	4 30	1 10	7 50	10 0	0 0	11 15	5 30	0 0	0 40	2 15	1 15	0 0	2 0	4 40	9 15	7 30	0 30	7 0	6 30	8 15	0 0	1 50	2 30	2 10	5 15	0 0	12 0	0 0	0 0	128 25
June.....	0 0	0 3	2 10	0 0	2 0	1 45	0 35	0 45	6 0	6 10	7 0	4 50	2 30	0 14	0 15	9 30	9 0	0 12	3 0	0 10	3 0	10 0	6 10	0 0	5 30	0 30	9 50	7 0	2 45	3 12	.....	104 6
July.....	5 30	8 45	0 10	4 20	5 45	2 50	7 10	0 0	3 10	5 0	10 40	11 0	0 0	0 50	3 20	10 35	14 0	13 20	11 45	7 30	4 10	1 50	12 35	7 0	0 0	1 15	6 0	3 55	5 0	6 10	4 30	188 14
August .....	5 50	3 0	3 30	1 25	6 40	7 0	0 35	4 0	5 0	6 50	4 10	1 0	1 30	0 0	2 25	5 35	2 25	8 30	4 20	5 40	0 45	0 0	4 40	5 10	0 0	8 10	6 55	9 15	0 0	9 55	3 5	127 20
September .....	5 40	0 30	5 40	4 40	7 40	5 0	3 30	6 30	4 30	10 0	8 45	4 55	1 30	3 45	5 20	0 25	2 5	4 15	4 5	1 40	3 0	0 20	2 50	4 30	1 50	0 30	2 10	7 35	0 0	1 0	...	114 10
October .....	1 40	5 45	6 10	8 10	0 0	0 20	8 0	4 10	5 0	3 15	5 10	0 0	3 50	0 50	0 20	5 30	0 0	0 0	5 50	2 15	6 35	3 0	2 50	6 45	1 0	0 0	0 0	0 40	0 0	0 0	0 0	87 5
November .....	5 0	0 50	0 10	0 0	0 0	4 20	0 30	0 0	1 20	3 40	0 0	5 20	2 50	0 0	7 25	0 0	0 0	4 30	0 0	0 0	0 15	0 0	0 15	0 25	3 50	0 0	1 40	0 0	6 0	3 30	...	52 10
December .....	0 15	0 0	3 40	0 0	2 30	3 30	2 50	0 0	2 0	0 0	0 0	0 0	0 0	1 15	0 0	0 0	0 0	1 15	0 0	0 0	0 0	0 0	0 0	1 45	1 30	2 25	0 20	2 20	0 0	0 50	0 0	26 25



## SUMMARY OF THE METEOROLOGICAL REPORT FOR 1907.

- Mean monthly reading of the Barometer—29·933"
- Highest daily reading of the Barometer—30·955"  
January 23rd
- Lowest daily reading of the Barometer—28·804"  
on February 20th
- Highest reading of the Maximum Thermometer—76°  
July 17th
- Lowest reading of the Minimum Thermometer—17·5°  
on January 25th
- Total rainfall during the year 42·39"
- Number of days during the year on which rain fell—230
- The greatest number of days on which rain fell in one month—  
29, in June
- The highest reading of the 4ft. Thermometer during the  
year—55·2° on August 1st and 2nd
- Number of days during the year without any bright sun-  
shine—89 days

## SUMMARY OF WIND RECORDS

Number of days in the year on which the prevailing wind  
was—

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.
11	30	48	17	59	67	104	29	8

The total number of miles registered during the year  
was—68,756

The greatest number of miles registered during one day  
was—605 on March 16th

The least number of miles registered during one day  
was—29 on July 25th and November 20th.

## MEAT INSPECTION AND FARM INSPECTION.

Full details respecting the Inspection of Meat and Dairy Cattle will be found in the Report of the Veterinary Inspector, which follows my covering remarks.

The total number of carcasses destroyed shows a decrease of 66 carcasses when compared with the number destroyed during 1906.

The following are the figures of condemned carcasses for the last five years :—

Year	1903	1904	1905	1906	1907
Carcasses of—					
Beef .....	219 ...	215 ...	198 ...	166 ...	135
Mutton .....	70 ...	64 ...	66 ...	91 ...	68
Veal .....	85 ...	106 ...	90 ...	87 ...	61
Pork .....	16 ...	34 ...	24 ...	22 ...	38
	and 1 goat			and 2 goats	
Totals ...	391	419	378	368	302

There was a diminution in the carcasses of beef, mutton, and veal condemned during 1907 as compared with 1906.

There has been a decrease in the number of animals slaughtered at the Public Abattoir, and in the number of carcasses and amount of meat brought to the Abattoir during 1907 as compared with 1906.

The inspection of meat at the Public Abattoir has again been carried out with the greatest care, and diseases of organs or any part of the carcase have been recorded accurately in the registers prepared specially and kept for that purpose.

A copy of a page from one of the registers, showing the different headings, appeared in my Annual Report for 1904.



The tuberculous carcasses which have been examined have been classified into cows, heifers, bulls, bullocks, calves, and pigs.

A total number of 12,099 of these six groups of animals were slaughtered during 1907, of which 528 were tuberculous, or a percentage of 4.3.

Similar percentages for the years 1902, 1903, 1904, 1905 and 1906 were respectively 6.0, 5.19, 6.07, 5.83, and 4.8.

Tuberculosis was not present in any sheep out of a total number slaughtered of 35,689.

Of the above 528 tuberculous carcasses, 83, or 15.7 per cent., were rejected.

The percentage of tuberculous carcasses rejected during 1904, 1905, and 1906, were 22.1, 19.4, and 19.0 respectively.

Of the above 528 tuberculous carcasses examined, 367 were cows, or 69.5 per cent., compared with 73.8 per cent. during 1905 and 73.7 per cent. during 1906.

Of the above 367 tuberculous cows examined, 55, or 14.9 per cent., were rejected, compared with 18.8 per cent. in 1906.

It is interesting to note that 511 out of the 528 tuberculous animals had Tuberculosis of the Lungs. The serous membranes of the thoracic cavity were the next most commonly affected parts.

A similar order prevailed in previous years.

The table showing the tuberculous udders at the Abattoir is again very instructive. All these were examined microscopically at the Fever Hospital Laboratory. The 33 tuberculous udders occurred in 2,317 cows, or 1.4 per cent.



The percentages of tuberculous udders for the years 1902, 1903, 1904, 1905, and 1906 were 1.5, 1.9, 2.0, 1.7, and 1.4 respectively.

Twelve of these 31 cows with tuberculous udders were giving milk until the day of slaughter, and milk from two of the corresponding farms was being sold in Blackburn.

Regarding the extent of the tuberculous process in these 33 cows, 12 exhibited the disease in a generalised form, and were rejected.

As I have stated previously, closure of all the private slaughter-houses in the Borough, so that all slaughtering could be carried out at the Public Abattoir, would ensure the process being carried out under satisfactory conditions, and also a more complete inspection of carcasses.

At the end of December, 1907, Dr. Buchanan, a Medical Inspector to the Local Government Board, published a report on certain imported meat foods of questionable wholesomeness.

The data embodied in this report relate to :—

- (1) Imported boneless scrap meat.
- (2) Imported pork in regard to tuberculosis.
- (3) Imported tripe, tongues, and kidneys which are heavily dosed with boron and other preservatives.

The Board have now under consideration the question of taking action to minimise or to remove the risks to health, which the present unrestricted admission of these foods entails, by the application of regulations such as are authorised by the Public Health (Regulations as to Food) Act, 1907.

#### I.—IMPORTED BONELESS SCRAP MEAT.

The material in question is meat imported in boxes, barrels, or other receptacles, which contain scraps, lumps, trimmings,

and other portions of such size and shape that they are not readily identifiable with definite parts of the dressed carcass. The term "imported boneless scrap meat" in this Report is used with reference only to what are, or purport to be, portions of fresh or frozen meat, and does not include meat preparations imported ready for domestic consumption in the form of sausages, pâtés, and the like. Most of the meat in question comes to the United Kingdom from the United States. A small quantity of this meat consists of uncooked sausage meat packed in barrels with considerable quantities of boron preservative, and as much as 44 grains of crystallised boric acid per pound has been found in such meat. The objections to imported boneless scrap meat have been summarised as follows:—

(1) It is meat in an objectionable form. In this country the practice of cutting meat into scraps for sale to sausage-makers is seldom met with, and such cases, when found, are usually associated with transactions in doubtful or "slink" meat. In the case of foreign scrap meat no inspection in this country can suffice to detect disease in the animals from which the meat was derived, or unwholesome conditions of handling, chemical treatment, packing, and the like, in the country of origin.

(2) In view of the cheapness of the commodity, its origin from animals of inferior food value, its method of preparation, etc., it is not prudent to regard it as free from suspicion of unwholesomeness solely on the strength of the declaration of the importers, or of any guarantee of inspection which may be furnished by the Foreign or Colonial Government concerned.

(3) One form of imported scrap meat—pork trimmings and other scraps of pigmeat from the United States—may, consistently with American meat inspection regulations, have been derived from tuberculous animals which health authorities in this country would not permit to be used for food.

(4) Generally speaking, it is desirable that sausage-makers should obtain meat which is readily identifiable with particular parts of a carcass, and have some knowledge of the nature of the meat which they use. The sausage-maker who obtains all his meat in this way, and satisfies himself so far as possible as to its wholesomeness, may be at a disadvantage by comparison with a less careful competitor, who is content to buy imported scraps for his sausage machine.

(5) Boxes of frozen meat have been found to show signs of decomposition at an early stage after they have been thawed. It is undesirable that scrap meat which is beginning to decompose should be accessible to the sausage or mincemeat-maker. Neither is it desirable that he should purchase imported sausage meat, which, though not frozen, has been mixed with unknown and sometimes large quantities of boric acid or other chemical preservatives.

## II.—TUBERCULOSIS AND IMPORTED PORK.

The pig is an animal readily susceptible to infection by tuberculosis. In the pig the disease spreads with greater rapidity, and tuberculosis shows a stronger tendency to become generalised than in the case of the bovine animal. There is, therefore, substantial ground for regarding the meat of pigs which are affected by tuberculosis in any degree as potentially dangerous to the person consuming such meat. Pig tuberculosis appears, in the great majority of cases, to result, directly or indirectly, from bovine infection.

Dr. Buchanan states that as regards tuberculosis in pigs, the meat of which is to be exported to the United Kingdom, the official instructions to the United States meat inspectors differ from the recommendations of the Royal Commission, 1898. The instructions to inspectors of the Bureau of Animal Industry in regard to tuberculosis in all food animals under the old law were amended in 1905, and the instructions as thus amended reappear in a code dated July 25th, 1906, issued under the new Meat Inspection Act of 1906. These current instructions make no

distinction, in regard to condemnation for tuberculosis of one or another degree, between pigs and cattle. The pig carcass, like that of the ox, is not to be rejected for food, provided that the tuberculous lesions comply with certain requirements as to their appearance and distribution.

As matters now stand, therefore, if the label "U.S. Inspected" on packages of box-pork from the United States is accepted at its maximum value, it affords a guarantee that the meat does not come from animals suffering from certain severe forms of tuberculosis, but does not attest that none of the meat is derived from tuberculous pigs; indeed, the United States regulations justify the assumption that some of the box-pork comes from animals affected by tuberculosis.

Dr. Buchanan says that the powers conferred upon the Board by the Public Health (Regulations as to Food) Act, 1907, would permit useful interim measures to be taken for the above purpose. He suggests conditions on the following lines:—

(a) Pork imported as carcasses to be required to consist of entire carcasses, including the head and lymphatic glands about the throat.

(b) Pork imported in portions less than the entire carcass to be enclosed in boxes, barrels, bags, or other receptacles bearing an official mark which has been accepted by the Board. The Board's acceptance of any proposed mark as an official mark would depend upon the evidence forthcoming from the exporting country that the mark affords a guarantee that the carcasses from which the portions of pork have been derived have been examined by competent and responsible officers, and have been found free from tuberculosis in any degree.

### III.—TRIPE, TONGUES, AND KIDNEYS HEAVILY DOSED WITH PRESERVATIVES.

Dr. A. W. J. MacFadden, a colleague of Dr. Buchanan, visited tripe-preparing establishments in London and Lancashire,

and conferred with manufacturers, importers, dealers, and others engaged in the tripe trade.

Some of the principal considerations which arise from his inquiry may be stated as follows :—

(1) The extent to which tripe is habitually eaten by the working classes in certain parts of the country, especially in Lancashire, makes doubt as to its wholesomeness a matter of considerable importance from the point of view of public health. At a rough estimate, something over 10,000 tons of tripe from all sources are annually consumed in the United Kingdom.

(2) The preparation of tripe from the stomachs of cattle includes various processes of washing, trimming, and scraping, followed by prolonged boiling. The product, as sold after boiling, is to all intents the finished food. If the tripe is to be eaten hot it is heated again (e.g., boiled in milk), but often, especially in Lancashire, it is eaten cold with little further preparation.

Dr. MacFadden shows that from the point of view of wholesomeness there is an important distinction between (a) tripe which has been boiled and has undergone its final preparation by tripe-boilers in this country before coming on sale to the public and (b) tripe which is imported already boiled.

(3) The first of these classes (a) comprises much the larger part of the tripe which is sold to the public. It includes *fresh, frozen, and uncooked barrel-tripe*.

The best quality of tripe in this class, that which fetches the highest price, is fresh, and comes in the main from cattle fed for first-class beef and slaughtered in the United Kingdom. The second quality, also an important article of food, comes largely from home-killed animals, the tripes of which, by reason of appearance, colour, insufficiency of fat, etc., are not considered to be up to the first



quality standard. The second quality also comprises tripe which has been scraped and scalded, and then frozen and kept in cold store to be thawed, boiled, and issued when demand arises. Some of this frozen tripe comes from home-killed animals, but much of it consists of imported tripe which comes frozen in boxes or sacks from Argentina. A certain proportion, referred to below, consists of uncooked "barrel tripe" imported from the United States and Canada.

(4) Reviewing the facts obtained with regard to fresh and frozen tripe, Dr. MacFadden concludes that so far as his inquiry has gone the conditions of its manufacture appear to be generally wholesome and cleanly. He gives an instance of premises in London used for storage of tripe which were quite unsuitable for the purpose, and doubtless there are other cases in which improvement is called for. In the case of frozen tripe, intermissions in, or insufficiency of, the freezing process may have unsatisfactory consequences, and need to be guarded against. But, as a whole, he found that considerable care is taken by tripe manufacturers and dealers to prevent the occurrence of contamination or decomposition of tripe in course of its preparation, transit, and storage. He could obtain no indication that preservatives are used in this country in the preparation or storage of home-killed tripe. No added preservative was detected in the samples of Argentine frozen tripe.

(5) Tripe of class (b), which is imported already cooked, must be placed in a different category. Trade in this tripe is of a comparatively recent growth, and the importation into the United Kingdom, which in 1905 amounted to about 560 tons, is almost wholly from the United States of America. In order to prepare such a readily-decomposable commodity as cooked tripe for the British market, it is packed in kegs containing strong solutions of boron preservative. In consequence, the tripe, which exposes a large surface to the preservative fluid, takes up considerable



amounts of boron compounds. The quantities of boric acid determined in samples of cooked tripe from the principal American importers, and those found when similar observations were made by Dr. Robertson, of Birmingham, were seldom less than 60 grains per pound (0.86 per cent.) and sometimes over 150 grains per lb. (2.14 per cent.). These amounts are so large that it is justifiable to infer that many persons who eat tripe of this kind would incur definite risk to health from the dose of boric acid taken. A quarter of a pound of this tripe—which may be considered a moderate meal—must often contain more than the maximum dose of boric acid prescribed for an adult by the British Pharmacopœia. It must be remembered that tripe is considered to be a food easy of digestion, and is given to invalids on that account. A further and important objection to this tripe is that decomposition may set in, but, owing to the presence of the preservative, no obvious sign of it will be present.

Dr. MacFadden also indicates that the success—such as it is—of this trade in preserved cooked tripe has been due, not to any special excellence of the article itself, as it is generally agreed that this kind of tripe has little “flavour,” but to the way in which the American firms concerned have created a market for it among provision dealers and other retailers who would not otherwise have traded in tripe. He shows, however, that this advantage conferred on provision dealers may be of doubtful value so far as health considerations are concerned, as the dealers in question may not have sufficient knowledge to discriminate between sound and unsound tripe, preserved under conditions that are capable of masking the ordinary signs of putrefaction, and who may possess no proper places for storage of a meat food of this kind.

(6) The uncooked “barrel tripe” above referred to comes to this country mainly from the United States, whence about 200 tons were imported in 1905. It has lately also been imported from Canada, but the Canadian trade has

so far hardly attained noteworthy dimensions. The tripe, after scalding and scraping, instead of being despatched in a frozen condition, is packed in barrels containing a preservative liquor. The liquid employed, like that used for the imported cooked tripe, consists mainly of a strong solution of boric acid or other boron compounds, and here also the tripe itself takes up large amounts of boric acid from the liquor.

The samples of the Canadian uncooked barrel-tripe which were examined in course of Dr. MacFadden's inquiry were preserved in a liquor containing less boric acid than that used for the treatment of the United States samples. But the Canadian liquors were found to contain preparations of sulphurous acid in addition. In one instance the tripe removed from liquor of this kind, after washing, contained preparations of boric and sulphurous acids equivalent respectively to 29 grains of crystallised boric acid and 26 grains of sulphite of soda per pound.

Uncooked barrel-tripe, like the Argentine frozen tripe, does not go direct to the public, but is purchased by the tripe-boiler in this country, who completes its preparation for the retail trade. This preparation entails boiling and other treatment, which results in the removal of much of the preservative from the tripe. But differences in the practices of tripe-preparers make the extent to which this removal occurs a matter of considerable uncertainty, and it appears in no case to be complete. In one instance, a sample of American uncooked barrel-tripe, after boiling for several hours in the ordinary way by a tripe-dresser, had retained as much as 26 grains of boric acid per pound.

(7) The new Meat Inspection Law of the United States, and the regulations made thereunder, have now made it illegal for American packers to use borax or boric acid, sulphites or sulphurous acid, and certain other preservative substances in the preparation of meat foods for inter-state commerce. The American packer who prepares preserved

tripe of the kinds above considered, if he is to comply with the new law and new official regulations, has to carry out the preservative treatment in portions of his establishment which are specially set aside for the purpose, and must label the preserved products in a prescribed manner, to indicate that the goods are intended solely for export. In these special portions of his premises the packer is permitted by the meat inspection law to carry on any preservative treatment which he requires for his foreign trade, provided that "no substance is used in the preparation or packing in conflict with the laws of the foreign country to which the articles are to be exported." British laws do not, in present circumstances, afford any protection in this respect to the British consumer.

(8) The total amount of the (cooked and uncooked) foreign preserved tripe imported into the United Kingdom is small by comparison with the total quantity of tripe available to British consumers. These kinds of tripe appear to constitute a distinct risk to health, which it is desirable to remove. Prohibition of their importation would cause little or no difference in the supply of this important food to the public. It would no doubt affect the United States trade, but it would be open to American traders to revise their methods.

I referred in my Annual Report for 1906 at considerable length to the need for care in ensuring a clean milk supply.

In the previous part of this report will be found an interesting bacteriological investigation of the Blackburn milk supply.

VETERINARY INSPECTOR'S REPORT OF MEAT  
INSPECTION AND INSPECTION OF DAIRY  
CATTLE, Etc.

Public Health Office,

Blackburn,

January 25th, 1908.

To the Medical Officer of Health.

Sir,

I have pleasure in submitting to you my Report for the year  
1907

During that period 1,154 diseased carcasses were examined at the Public Abattoir and Private Slaughter-Houses in the Borough, 292 of which were rejected and destroyed as unfit for human food. Ten immature carcasses of veal were also destroyed, making the total number of carcasses destroyed 302. Compared with last year, this return shows a decrease of 59 diseased carcasses and seven immature calves.

During the year 4,577 lbs. of unsound meat, 313 rabbits, 30 head of poultry, and a large quantity of fish were also destroyed. The total weight of the rejected carcasses, organs, meat, etc. (excluding fish), destroyed during the year was 49 tons 15 cwts. 1 qr.

There are at the present time 15 private slaughter-houses in the Borough where animals are slaughtered for sale as human food.

The following tables refer to the number of animals slaughtered at the Abattoir, the amount of dead meat brought to the Abattoir, the number of tuberculous carcasses and udders examined, the number of carcasses destroyed, and numerous other particulars relating to the inspection of meat and dairy cattle.

TABLE LXXXV.  
NUMBER OF ANIMALS SLAUGHTERED AT THE  
PUBLIC ABATTOIR

1907	Beasts.	Sheep.	Goats.	Calves.	Pigs
January .....	636	2758	3	174	377
February .....	469	2486	...	172	268
March .....	434	1985	1	348	211
April .....	514	2073	1	243	215
May .....	546	2670	1	199	155
June .....	420	3058	...	155	137
July .....	497	4228	...	189	175
August .....	421	3188	1	133	138
September .....	494	3081	...	179	150
October .....	673	4130	...	308	238
November .....	538	3146	...	224	360
December ....	583	2836	..	146	980
Totals ...	6225	35689	7	2470	3414

Compared with last year this table shows an increase of 543 Beasts, 260 calves, and 699 Pigs ; also a decrease 1880 Sheep and 1 Goat.

TABLE LXXXVI.  
NUMBER OF CARCASSES AND AMOUNT OF MEAT  
BROUGHT TO THE ABATTOIR.

1907.	CARCASSES.		BEEF.			PORK.
	Beef.	Mutton.	Hind Quarters	Buttocks	Clods	Boxes.
January . . .	87½	288	100	5	6	4
February ...	130	474	94	...	...	...
March .....	112½	599	129	...	4	...
April ... ..	66	440	93	...	...	..
May .. ...	87	717	90	...	11	...
June .. ...	53	91	91	...	...	...
July .. ...	41	...	112	3	5	...
August ...	19	...	107	...	...	...
September	20	...	85	...	...	...
October	71½	..	124	...	4	...
November	62½	...	90	...	..	...
December .	48	..	54	...	...	..
Totals	798	2609	1178	8	30	4

Compared with last year this table shows an increase of 386 Hind Quarters of Beef ; and a decrease of 593 Carcasses of Beef ; 203 Carcasses of Mutton ; 9 Clods of Beef, and and 15 Boxes of Pork.



TABLE LXXXVII.—TUBERCULOUS CARCASSES EXAMINED AND REJECTED.

1907.	Cows.		Heifers.		Bulls.		Bullocks.		Calves.		Sheep.		Pigs.		Totals.	
	Exam'd	Rejected	Exam'd	Rejected	Exam'd	Rejected	Exam'd	Rejected	Exam'd	Rejected	Exam'd	Rejected	Exam'd	Rejected	Exam'd	Rejected
January .....	48	9	...	...	2	...	2	...	...	...	...	...	2	1	54	10
February .....	30	3	5	1	6	...	2	...	...	...	...	...	2	...	45	4
March .....	20	7	1	1	5	...	2	...	4	1	...	...	1	1	39	10
April .....	24	4	2	1	3	...	1	...	...	...	...	...	3	2	33	7
May .....	39	5	2	1	3	...	...	...	...	...	...	...	19	4	63	10
June .....	26	2	2	...	6	...	3	...	...	...	...	...	9	2	46	4
July .....	32	1	2	1	6	...	1	...	1	...	...	...	6	2	48	4
August .....	15	4	2	...	...	...	1	...	...	...	...	...	1	1	19	5
Sept .....	24	2	5	...	6	1	1	...	1	1	...	...	...	...	37	4
October .....	37	8	11	1	...	...	4	...	...	...	...	...	1	...	53	9
Nov .....	37	6	2	...	...	...	2	...	...	...	...	...	9	...	50	6
Dec .....	29	4	7	3	2	2	1	...	1	...	...	...	1	1	41	10
Totals .....	367	55	41	9	39	3	20	...	7	2	...	...	54	14	528	83



TABLE LXXXVIII.—Tuberculous Cows exhibiting Tuberculous Disease in the Mammary Glands

1907	No. of Cow	Age.	Where From.	Extent of the Tuberculous Process.		Was the giving milk on the day of slaughter.	Was Milk from the farm sold in Blackburn.	Result of examination of the Carcase.
				Generalized	Localized			
Jan. 1	1	aged	Clitheroe .....	Yes	No	No	No	rejected
" 2	2	aged	Grimleton .....	No	Yes	Yes	No	passed
" 17	3	aged	Liverpool .....	No	Yes	Yes	No	passed
" 17	4	aged	Ramsgrave .....	No	Yes	No	Yes	passed
" 30	5	aged	Blackburn Market ..	Yes	No	No	No	rejected
Feb. 26	6	aged	Fent-cowles .....	No	Yes	No	No	passed
Mar. 6	7	3 yrs	Mellor .....	Yes	No	No	No	passed
" 6	8	aged	Liverpool .....	Yes	No	No	No	passed
" 13	9	4 yrs	Scotland .....	No	Yes	Yes	No	rejected
" 14	10	aged	Osbaldeston .....	Yes	No	No	No	passed
" 25	11	aged	Liverpool .....	No	Yes	No	No	rejected
April 2	12	aged	Salford .....	No	Yes	Yes	No	passed
" 12	13	aged	*Wilworth .....	No	Yes	No	No	passed
" 13	14	aged	*Little Harwood .....	No	Yes	No	No	passed
" 15	15	aged	Ramsgrave .....	No	Yes	No	Yes	passed
May 9	16	aged	Stonyhurst .....	No	Yes	Yes	Yes	passed
" 13	17	aged	*Newfield .....	Yes	No	Yes	No	passed
" 23	18	aged	Hoghton .....	No	Yes	Yes	No	rejected
" 29	19	aged	Whalley .....	Yes	No	No	No	passed
" 29	20	aged	Salford .....	No	Yes	Yes	No	rejected
July 15	21	aged	Tockholes .....	No	Yes	Yes	No	passed
Sept. 10	22	aged	Preston Mart .....	No	Yes	Yes	Yes	passed
Oct. 4	23	aged	Tockholes .....	No	Yes	Yes	No	passed
" 10	24	aged	Clitheroe .....	No	Yes	Yes	No	passed
" 14	25	aged	Blackburn Market ..	No	Yes	Yes	No	passed
" 15	26	aged	Samlesbury .....	No	Yes	No	No	passed
" 22	27	aged	Sawley .....	Yes	No	No	No	passed
" 22	28	aged	Sawley .....	Yes	No	No	No	rejected
" 23	29	aged	Haslingden .....	Yes	No	No	Yes	rejected
Nov. 21	30	aged	Stonyhurst .....	No	Yes	Yes	No	rejected
" 27	31	aged	Sawley .....	Yes	No	No	No	passed
" 5	32	aged	Ireland .....	No	Yes	No	No	rejected
" 12	33	aged	Mellor .....	Yes	No	No	No	passed
" 12	33	aged	Tockholes .....	No	Yes	No	No	rejected
" 12	33	aged	Tockholes .....	No	Yes	No	No	passed

Those marked \* were from Cowsheds within the Borough.

**TABLE LXXXIX.**—TUBERCULOSIS IN THE ANIMALS SLAUGHTERED DURING THE TWELVE MONTHS ENDING 31st DECEMBER, 1907.

EXTENT OF THE TUBERCULOUS PROCESS.															
Kind of Animal.	Number Slaughtered.	Of which were Tuberculous	THORAX.			ABDOMEN.									
			Lungs	Heart and ++	Serous Membranes	Livers	Stomachs *	Spleens	Kidneys	Intestines	Uteri	Serous Membranes	Bones	Testicles	Udders
Cows .....	2317	367	364	21	271	155	30	39	63	35	15	142	3	...	32
Heifers ...	669	41	39	4	30	19	4	7	7	5	2	15	2	...	1
Bulls .....	1112	39	38	1	25	9	...	2	4	...	...	12	1	1	...
Bullocks .....	2127	20	17	...	17	7	1	1	...	1	...	9	...	...	...
Calves .....	2470	7	6	...	2	4	...	1	...	...	...	1	...	...	...
Sheep .....	35689	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pigs .....	3404	54	47	...	6	42	1	17	...	3	...	4	1	...	...
Totals.....	17788	528	511	26	351	236	36	67	74	44	17	183	7	1	33

† In one case only the heart's muscle was Tuberculous. \* Serous coat only.

TABLE XC.

DISEASED CARCASSES EXAMINED, REJECTED, AND  
DESTROYED FOR DISEASES, etc. OTHER THAN  
TUBERCULOSIS.

CARCASSES.

BEEF.	MUTTON.	GOATS.	VEAL	PORK.
2 Anthrax	6 Anthrax		6 Arthritis	4 Anthrax
1 Anaemia	7 Anasarca		4 Abnormal colour, &c.	1 Arthritis
2 Anasarca	1 Acute Nephritis		6 Congested, ill bled	4 Anasarca
2 Cirrhosis of Liver and Jaundice	2 Anaemia		1 Enteritis	4 Cirrhosis of Liver and Jaundice
Conditions incidental to difficult part- urition	2 Conditions incidental to difficult parturition		1 Fractured Limbs, &c.	4 Swine Erysipelas
1 Chronic Nephritis	1 Cirrhosis of Liver		10 Immature	2 Emaciated
2 Extensively Bruised	13 Congested, ill bled		5 Icterus	1 Pneumonia
2 Emaciated	14 Emaciated		1 Malignant Oedema	1 Pyæmia
3 Enteritis and Peritonitis	1 Extensively Bruised		1 Pericarditis	1 Pericarditis
1 Gastritis	2 Enteritis		1 Pneumonia	1 Septicæmia
4 Pneumonia	1 Parasitic Pneumonia		3 Pyæmia	1 Unmarketable, &c.
5 Rheumatism	2 Pneumonia		3 Putrid	
4 Rheumatic Arthritis	4 Putrid		1 Suffocated	
6 Septicæmia	5 Parasitic disease of lungs and liver		4 Unmarketable, &c.	
4 Septic Metritis	2 Suffocated		12 Emaciated	
1 Septic Mammitis	5 Unmarketable, &c.			
1 Fractured Limbs, &c.				
13 Staggers				
2 Symptomatic Anthrax				
4 Parturient Apoplexy				
1 Post partum Hæmorrhage				
4 Unmarketable, &c.				
2 Suffocated				
Totals 68	68		59	24

## Total Number of Carcases Destroyed.

### Kind of Carcase—1907.

Beef.....135—including 67 tuberculous, 2 anthrax,  
and 2 symptomatic anthrax.

Mutton.....68—including 6 anthrax.

Veal.....61—including 2 tuberculous and 10 immature.

Pork.....38—including 14 tuberculous and 4 anthrax.

Total.....302 carcases.

## DISEASED ORGANS, &c. REJECTED & DESTROYED.

1907	Heads.	Sets of Lungs.	Hearts.	Diaphragms.	Livers.	Stomachs	Spleens.	Kidneys.	Udders
For Tuberculosis.	2	432	3	18	165	...	19	42	21
For diseases other than Tuberculosis.	3	64	42	11	354	43	12	65	44
Totals...	5	496	45	29	519	43	31	107	65

## DISEASED TISSUES, ETC., FORWARDED TO THE FEVER HOSPITAL LABORATORY FOR EXAMINATION.

<i>Material.</i>	<i>Positive.</i>	<i>Negative.</i>	<i>Total</i>
Sections of cows' udders for tubercle bacilli	27	8	35
Sections of lungs, livers, spleens, kidneys, muscles, blood, &c.; for anthrax bacilli	12	9	21
Cow's jaw-bone for Actinomycosis.....	1	0	1
Pus from calf's stifle-joint for Streptococci	2	0	2
Spleens for Swine Erysipelas ...	0	3	3
Totals .....	42	20	62

DISEASED, BRUISED, PUTRID, AND UNMARKETABLE MEAT  
REJECTED AND DESTROYED APART FROM WHOLE CARCASSES.

1907.	Beef, Mutton, Pork and Veal.					lbs.
January ...	...	...	...	...	...	278
February ...	...	...	...	...	...	333
March . ...	...	...	...	...	...	146
April ...	...	...	...	...	...	444
May ...	...	...	...	...	...	110
June ...	...	...	...	...	...	50
July ...	...	...	...	...	...	314
August ...	...	...	...	...	...	408
September	...	...	...	...	...	1358
October ...	...	...	...	...	...	432
November	...	...	...	...	...	294
December	...	...	...	...	...	410
Total ...						4,577

FISH, RABBITS, GAME, AND POULTRY, EXAMINED, REJECTED,  
AND DESTROYED.

1907	Fish.						Rabbits	Poultry.
	Boxes.	Barrels	Bags	Kits	Lbs	Quarts		Head of Poultry
Totals	267 $\frac{1}{2}$	9	66 $\frac{1}{2}$	12	548	6	313	30

NUMBER OF ANIMALS INSPECTED IN PRIVATE  
SLAUGHTER-HOUSES.

Beasts.	Sheep.	Calves.	Pigs.
2187	8605	534	7

WEIGHT OF REJECTED CARCASSES, ORGANS, MEAT, &c.,  
FORWARDED FOR DESTRUCTION DURING THE YEAR  
FROM THE ABATTOIR TO AUDLEY DESTRUCTOR.

1907.	Tons.		Cwts.		Qrs
January	5	...	...	...	...
February	4	...	9	...	...
March	4	...	1	...	...
April	3	...	6	...	3
May	4	...	1	...	2
June	2	...	15	...	2
July	2	...	18	...	2
August	2	...	7	...	...
September	4	...	9	...	2
October	5	...	13	...	...
November	4	...	13	...	...
December	6	...	..	...	2
Totals	49		15		1

The above figures do not include the weight of Fish destroyed.

#### NUMBER OF VISITS.

To Butcher's Shops, etc. ....	1,228
To Private Slaughter-houses .....	1,754
To the Meat Market.....	525
To the Fish Market .....	683
To the Public Abattoir .....	820
To the Railway Station.....	336

Total.... 5,346 visits

#### NEW CART.

Since September 1st last a new zinc-lined cart has been used for the conveyance of diseased carcasses and meat from the Abattoir to Audley Destructor.



## MAGISTERIAL PROCEEDINGS.

On April 2nd Inspector Almond seized a large piece of putrid beef and seventeen unsound "Yorkshire Ducks" which he found exposed for sale as human food in a pork butcher's shop. On April 19th the owner was brought before the Magistrates and fined £10 and costs in two cases for having unsound food exposed for sale in his shop.

On May 24th W. H., a butcher, slaughtered a boar in a stable near the Abattoir. On June 6th W. H. was brought before the Magistrates and fined 40s. and costs for slaughtering a boar on unlicensed premises on May 24th.

On Sunday, July 14th, I seized three pieces of putrid mutton which I found exposed for sale in a butcher's shop. On July 19th the owner of the mutton was fined £5 and costs for having three pieces of unsound mutton exposed for sale as human food.

#### CASES OF ANTHRAX INSPECTED AT THE ABATTOIR, ETC.

Twelve cases were dealt with during the year, viz. :

- 1.—March 19th. A sheep found dead in a field at Cherry Tree.
- 2 and 3.—April 28th. Two cows slaughtered at a farm in Blackburn.
- 4.—May 24th. A boar brought alive from Burnley.
- 5.—July 15th. A sheep found dead in a field in Blackburn.
- 6 and 7.—August 13th and 14th. Two sheep from Ireland.
- 8.—September 25th. The carcase of a sheep from Clayton-le-Dale.
- 9 and 10.—October 21st. Two pigs from Ireland.
- 11.—November 3rd. The carcase of a pig from Ireland.
- 12.—November 4th. A sheep which died in the Abattoir.

The following figures show the cases of Anthrax discovered and reported in Blackburn during the years :—

	1900	1901	1902	1903	1904	1905	1906	1907
Blackburn cases	1	1	1	5	1	1	2	3
Outside cases ... (introduced)	4	4	3	3	8	4	3	9
Totals .....	5	5	4	8	9	5	5	12

### FARM AND DAIRY CATTLE INSPECTION

During the year I visited 112 farms, inspected 179 cow-sheds, and examined the mammary glands of 1,928 dairy cows.

I certified that nine of the cows examined were suffering from tuberculosis of their mammary glands, and the sale of their milk was immediately prohibited by you.

TABLE XCI.

**Tuberculous Cows Exhibiting Mammary Tuberculosis.**

No. of Cow.	Date of Certificate, 1907.	Situation of Farm in Blackburn.	Extent of Tuberculous Process in Cow's Udder.	Remarks.
1	April 25	Guide	Right anterior quarter tuberculous	Sold Destination unknown
2	May 23	Guide	Both posterior quarters tuberculous	Sold Destination unknown
3	June 10	Pleckgate	Left posterior quarter tuberculous	Sold Destination unknown
4	June 19	Witton	Right anterior and posterior quarters tuberculous	Slaughtered at knacker's yard
5	Aug. 30	Mill Hill	Right posterior quarter tuberculous	Slaughtered
6	Sept. 17	Pleckgate	Right posterior quarter tuberculous	Slaughtered at knacker's yard
7	Oct. 16	Haslingden Road	Right posterior quarter tuberculous	Slaughtered
8	„ 31	Witton	Left posterior quarter tuberculous	Slaughtered at knacker's yard
9	Dec. 3	Guide	Right posterior quarter tuberculous	Sold. Destination unknown.

It will be seen that four of these nine cows were removed from Blackburn and their destination unknown. There is nothing in the present legislation to prevent a cow suffering from tuberculosis of the udder being sold and removed into another district, there again to supply tuberculous milk until re-discovered, by the examination of milk samples, or by an inspector of dairy cattle, if one happens to be employed in that district. To cope successfully with such cases stringent legislation, requiring the immediate slaughter of dairy cows suffering from tuberculosis of the udder, also of cows showing clinical symptoms of tuberculosis in any form, is urgently required. Compulsory notification of all udder diseases in dairy cows by their owners and veterinary practitioners is also necessary.

I would here suggest that local veterinary practitioners be paid a small fee for notifying to you cases of udder tuberculosis in dairy cows occurring in their practice at farms situated inside or outside the Borough, provided that milk produced at the farm is sold in Blackburn.

I found 11 cows suffering from mammitis and other abnormal conditions of their udders. The milk from these cows was not sold for human food.

I found six cows showing clinical symptoms of tuberculosis, and requested their removal from the cowsheds, and advised their immediate slaughter, which was carried out.

Of the 367 tuberculous cows slaughtered at the Abattoir 29 only were brought from farms in the Borough and 11 from Blackburn Cattle Market. The others were brought from Aberdeen, Edinburgh, Annan, Salford, Preston, Clitheroe, Liverpool, and farms in the surrounding district.

## TUBERCULOUS UDDERS.

Your letter of May 13th to farmers in Blackburn, requiring them to notify to you every case, or suspected case, of udder

tuberculosis in their dairy cows, has not been complied with in a satisfactory manner. Only one farmer reported an abnormal udder, and on examination I found that it was not tuberculous.

Of the twelve cases of udder tuberculosis discovered in dairy cows from Blackburn cowsheds none were notified to you, three were discovered at the Abattoir after slaughter, and nine were detected at farms by me during visits of inspection. Every one of these cases should have been notified to you by their owners, as required by the Blackburn Corporation Act of 1901, and the sale of their milk as human food could have been prevented much earlier.

#### MAGISTERIAL PROCEEDINGS.

On April 12th a cow was brought to the Abattoir from a farm in the Borough. On examination it was found that her udder was tuberculous in every quarter.

On April 19th the owner of this cow was summoned to appear before the Magistrates, and was fined 20s. and costs for not reporting to the Medical Officer of Health that he had in his possession a dairy cow suffering from tuberculosis of the udder.

On December 6th another farmer in the Borough was fined 20s. and costs for not reporting that on October 31st he had in his possession a cow suffering from udder tuberculosis.

TABLE XCII.

**Cattle Tested with Tuberculin.**

Fifteen head of dairy cattle were tested with tuberculin as follows :—

No.	Subject.	Temperature at time of injection.	Temperature 12 hours later.	Result of Test.
1	Dark red dairy cow	101°F.	104°F.	Positive, tuberculous
2	Roan                   ,,	100°·5F.	105°F.	,,                   ,,
3	Red                   ,,	101°F.	105°·5F.	,,                   ,,
4	,,                   ,,	101°·2F.	106°·5F.	,,                   ,,
5	,,                   ,,	101°·5F.	105°·8F.	,,                   ,,
6	,,                   ,,	101°F.	101°·5F.	Negative, not   ,,
7	Red and white   ,,	101°F.	105°F.	Positive           ,,
8	,,                   ,,   ,,	100°·5F.	103°·8F.	Doubtful
9	Roan                   ,,	100°·5F.	105°·5F.	Positive, tuberculous
10	,,   heifer	101°F.	104°·5F.	,,                   ,,
11	Roan   dairy   cow	102°F.	106°·5F.	,,                   ,,
12	Red                   ,,   ,,	102°F.	105°F.	,,                   ,,
13	,,                   ,,   ,,	102°F.	105°·5F.	,,                   ,,
14	Roan                   ,,	102°F.	106°·5F.	,,                   ,,
15	Red                   ,,	102°F.	105°F.	,,                   ,,

Cows 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 14 and 15 reacted, and were therefore tuberculous; cow 6 was not tuberculous; and 8 was doubtful.



## TUBERCULOUS MILK.

## CASE I.

On March 26th four samples of mixed milk were collected at a farm in Blackburn and forwarded to Manchester for examination.

On April 22nd it was reported that two of the samples had been found to cause tuberculosis by inoculation.

These two samples, numbered 24 and 41, represented the mixed milk of 32 cows. Each sample contained the mixed milk of 16 cows.

I immediately visited the farm and examined the dairy cows. I found that two of them had diseased udders, one of which I certified to be tuberculous. On April 24th I obtained the consent of the owner to test these two cows with tuberculin, and both gave a positive reaction, as follows :—

No.	Subject.	Evidence of Disease.	Temperature on April 24th, at time of injection, 9 o'clock p.m.	Temperature on April 25th, at 9 o'clock a.m.
1	White cow	Right anterior quarter of udder indurated.	102° F	107° F
2	Red cow	both posterior quarters of udder enlarged.	101·5 F	105·5 F.

These cows were immediately removed from the cowshed and isolated, and the sale of their milk prohibited by you. Tubercle bacilli were found in pus from the white cow's udder and in the milk of the red cow.

A sample of the red cow's milk was also forwarded to Manchester, and was found to cause tuberculosis by inoculation.

In order to be absolutely certain that no cow giving tuberculous milk remained in this cowshed, I visited the farm on May 1st, and divided the cows into four groups, as follows :—

Group 1.—Cows. Sample Can, B.36		Group 2.—Cows. Sample Can, B.37.	
Cow.	Colour.	Cow.	Colour.
1	Red.	1	Red and White.
2	White.	2	Dark Red and White.
3	Red.	3	Red and White
4	Red.	4	Red and White.
5	Red.	5	Black.
6	*Roan (new cow)	6	Light Red and White.
7	Red and White	7	Roan.
8	Roan.	8	Red and White

Group 3.—Cows. Sample Can, B.38.		Group 4.—Cows. Sample Can, B.39.	
Cow.	Colour.	Cow.	Colour.
1	*Red (new cow).	1	Red.
2	Black.	2	Red and White.
3	Black.	3	Red and White.
4	Roan.	4	Red and White.
5	Red and White.	5	Red.
6	Roan.	6	Roan.
7	Red.	7	Blue Roan.
8	Red.	8	Red and White.

\* These cows replaced the two cows with abnormal udders which had been isolated.

I then collected a sample of the mixed milk of the cows forming each group, and forwarded them to Manchester for examination for the presence of tubercle bacilli by inoculation. On May 29th it was reported that these four samples had not caused tuberculosis by inoculation. It was, therefore, evident that the white and red tuberculous cows were the cause of the presence of tubercle bacilli in the two samples of mixed milk

representing the milk of thirty-two cows. I am sorry to say that these two cows were sold, removed from the farm, and could not be traced, their owner refusing to state to whom he had sold them.

## CASE II.

On August 1st a sample of the mixed milk of 36 cows kept at a farm outside the Borough was collected from a milk-cart in the street, and forwarded to Manchester for examination.

On August 28th it was reported that this sample had caused tuberculosis in guinea-pigs by inoculation. I visited the farm and carefully examined the udders of the dairy cows, but was unable to detect any disease of their udders.

On September 2nd I again visited this farm, and divided the cows into four groups, and from each group I collected a sample of mixed milk and forwarded it to Manchester for examination by inoculation

Sample Can, B.36		Group 2.—8 Cows	
Group 1.—8 Cows		Sample Can, B.37.	
Cow.	Colour.	Cow.	Colour.
1	Red and White	1	Roan.
2	Red and White	2	Red.
3	Roan.	3	Strawberry Roan.
4	Light Roan	4	Roan.
5	Roan.	5	Red and White.
6	Red Roan.	6	Rusty Roan.
7	Roan.	7	Roan.
8	Roan (not giving milk).	8	White.

Group 3.—8 Cows.		Group 4.—12 Cows.	
Sample Can, B.39.		Sample Can, B.40.	
Cow.	Colour.	Cow.	Colour.
1	Light Roan.	1	Red and White.
2	Strawberry Roan.	2	Rusty Roan.
3	Blue Roan.	3	Red Roan.
4	Black and White.	4	Brindled.
5	Roan.	5	Roan.
6	Blue Roan.	6	Blue Roan.
7	Red and White.	7	Rusty Roan.
8	Black.	8	Light Roan.
		9	Light Roan.
		10	Red and White.
		11	Black.
		12	Light Roan.

On September 30th a report was received stating that these four samples had been tested by inoculation and found not to cause tuberculosis.

### CASE III.

On July 31st a sample of the mixed milk of 22 cows kept at a farm outside the Borough was collected from a milk-cart in the street, and forwarded to Manchester for examination.

On August 28th a report was received stating that this sample had caused tuberculosis by inoculation. The following day I visited this farm, and examined the udders of 25 dairy cows, but was unable to detect any udder disease. I collected a sample of the mixed milk of 24 of these cows, and forwarded it to Manchester for examination. The other cow was not giving milk.

On September 24th it was reported that this sample had been tested by inoculation and had not caused tuberculosis. The farmer informed me that the sample of mixed milk collected from him on July 31st was not produced at his farm, but, being short of milk on that morning, he had purchased a gallon from another farmer, and it was from that gallon that the sample was obtained.

Acting on that information, on August 30th I visited the farm where that gallon of milk had been produced, and examined the udders of 21 dairy cows, finding them normal.

On September 5th the 21 cows were grouped as follows :--

Group 1.		Group 2.	
Sample Can, No. 11.		Sample Can, No. 6.	
Cow.	Colour.	Cow.	Colour.
1	Roan.	1	Roan.
2	Red and White.	2	White.
3	Red and White.	3	Roan.
4	Roan.	4	Red and White.
5	Roan.	5	Roan.
6	Roan.	6	Roan.
7	Roan.	7	Black.
8	Roan.	8	Black (not giving milk)
9	Roan.	9	Brindled.
10	Red and White.	10	White (new cow).
11	Red.		

I then collected a sample of mixed milk from each group, and forwarded them to Manchester for examination.

On October 4th a report was received stating that both these samples had failed to cause tuberculosis by inoculation.

With reference to Cases II. and III. it is unlikely that any cow suffering from tuberculosis of the udder was present on the dates of my clinical examinations of the cows at these farms, as the samples of mixed milk I then collected and forwarded for examination proved negative.

In my opinion the tuberculous cows which infected the milk with tubercle bacilli on July 31st and August 1st must have been removed from the herds before the dates of my visits of inspection. Delépine, Bang, and others have recorded cases in which they found tubercle bacilli in milk from cows whose udders appeared to be free from tuberculous lesions, although the animals were otherwise tuberculous.

Tubercle bacilli may gain access to cows' milk in various ways, amongst which the following may be mentioned :—

- 1.—The principle way, no doubt, is direct from a tuberculous udder.
- 2.—Contamination by the bowel discharge of cows suffering from tuberculosis of the bowels, and such cows are frequently seen in cowsheds with their hind quarters, udders, and tails soiled with excreta.
- 3.—By the muco-purulent vaginal discharge from cows suffering from tuberculosis of the uterus, and this is not an uncommon condition. See Table LXXXIX., which shows that 35 cases of tuberculosis of the bowels and 15 cases of tuberculosis of the uterus were discovered in dairy cows slaughtered at the Abattoir during 1907.
- 4.—By the tuberculous material coughed up by cows suffering from pulmonary tuberculosis drying and floating in the air of cowsheds.
- 5.—Perhaps, in some cases, by a phthisical milker.

#### BACTERIOLOGICAL EXAMINATION OF MILK FOR TUBERCLE BACILLI.

During the year 55 samples of milk were collected and forwarded to Professor Delépine for bacteriological examination. Of these 55 samples 59 examinations were made, 46 for tubercle bacilli and 13 in order to estimate the amount of contamination caused by excreta, dirt, micro-organisms, etc. The 46 samples examined for tubercle bacilli were obtained as follows :—Eleven unmixed samples were obtained direct from cows with abnormal udders, 18 mixed samples were collected from milk-carts in the streets of Blackburn, and five mixed samples were collected at farms outside the Borough. The samples of milk examined for contamination were collected at farms in the Borough. I collected 36 of the samples of milk; the remaining 19 were collected by other Inspectors—18 in the streets and one at a farm.

The following tables show the results obtained :—



TABLE XCIII.

Unmixed Samples of Milk obtained from Cows with Abnormal Udders  
at Farms in the Borough.

Number of Sample.	Date of Collection.	Number of Can.	Evidence of Disease in Cow's Udder.	Result of Examination by Inoculation for Tuberculosis.	Result of Tuberculin Test.
1	Feb. 26	B 39	Right posterior quarter indurated	Negative	Reaction Temp. 105° F
2	„ 26	B 40	Right posterior quarter nodular	Do.	Do. do.
3	„ 28	B 37	Both posterior quarters indurated	Do.	Not tested
4	„ 28	B 36	Right anterior and posterior quarters indurated	Do	Do.
5	Apr. 25	B 40	Both posterior quarters indurated	Positive	Reaction Temp. 105°·5 F.
6	May 23	B 40	Small nodule in right posterior quarter	Negative	Not tested
7	June 1	B 40	Left anterior quarter enlarged	Do.	Reaction Temp. 105°·5 F.
8	„ 11	B 40	Left posterior quarter enlarged & indurated	Do.	Not tested
9	July 11	B 40	Left anterior quarter of udder indurated	Do.	Do.
10	Nov. 1	B 37	Left posterior quarter of udder enlarged and indurated.	Positive	Do.

At Farms outside the Borough.

1	Sep. 24	B 38	Cow wasting. udder indurated	Negative	Reaction Temp. 106°·5 F.
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TABLE XCIV.

SAMPLES OF MIXED MILK COLLECTED FROM MILK CARTS  
IN THE STREETS OF BLACKBURN.

Number of Sample.	Date of Collection	Number of Can.	Number of Cows.	Result of Examination by Inoculation for Tuberculosis.
1	May 17	9	12	Negative. Tested by inoculation and found <i>not</i> to cause Tuberculosis
† 2	„ 17	18	30	Do. do.
3	„ 24	B 37	14	Do. do.
4	„ 24	B 39	20	Do. do.
5	„ 24	B 38	29	Do. do.
6	„ 24	B 36	28	Do. do.
7	Jun 10	B 36	22	Do. do.
8	„ 10	B 39	73	Do. do.
* 9	„ 10	B 37	40	Do. do.
10	„ 10	B 38	31	Do. do.
11	„ 18	B 37	18	Do. do.
12	„ 18	B 36	18	Do. do.
13	July 31	B 39	10	Do. do.
14	„ 31	B 38	22	Positive. Tested by inoculation and found <i>to cause</i> tuberculosis
15	Aug 1	B 36	36	Do. do.
16	„ 1	B 37	12	Negative. Tested by inoculation and found <i>not</i> to cause Tuberculosis
* 17	Oct. 3	B 38	19	Do. do.
18	Nov. 3	B 38	10	Do. do.

The above table shows that 18 samples were collected, representing the mixed milk of 444 cows. Two samples, the mixed milk of 58, were positive, and the remaining 16 samples, the mixed milk of 386 cows, were negative. Samples marked \* were from cowsheds in Blackburn. Sample marked † was from cows supplying the Blackburn Infirmary.

TABLE XCV.

MIXED SAMPLES OF MILK COLLECTED IN COWSHEDS AT  
FARMS IN THE BOROUGH.

Number of Sample.	Date of Collection	Number of Can.	Number of Cows.	Result of Examination by Inoculation for Tuberculosis.
*1	Mch. 21	B 38	25	Negative. Tested by inoculation and found <i>not</i> to cause tuberculosis.
†2	„ 26	24	16	Positive. Tested by inoculation and found <i>to cause</i> tuberculosis.
†3	„ „	41	16	Do. do.
†4	„ „	11	5	Negative. Tested by inoculation and found <i>not</i> to cause tuberculosis.
†5	„ „	42	14	Do. do.
6	May 1	B 36	8	Do. do.
7	„ „	B 37	8	Do. do.
8	„ „	B 38	8	Do. do.
9	„ „	B 39	8	Do. do.
10	Sept. 5	11	11	Do. do.
11	„ „	6	10	Do. do.
12	„ 19	B 38	22	Do. do.

The above table shows that 12 samples were collected, representing the mixed milk of 151 cows. Two samples, the mixed milk of 32 cows, were positive, and the remaining 10 samples, the mixed milk of 119 cows, were negative. Samples marked \* were from the cows supplying the Fever Hospital. Samples marked † were also examined for contamination.

TABLE XCVI.

MIXED SAMPLES OF MILK COLLECTED IN COWSHEDS AT  
FARMS OUTSIDE THE BOROUGH.

Number of Sample.	Date of Collection	Number of Can.	Number of Cows.	Result of Examination by Inoculation for Tuberculosis.
1	Aug. 29	B 38	24	Negative.
2	Sept. 2	B 36	7	Do.
3	, ,	B 37	8	Do.
4	, ,	B 39	8	Do.
5	, ,	B 40	12	Do

TABLE XCVII.

MIXED SAMPLES OF MILK COLLECTED AT FARMS IN THE BOROUGH  
IN ORDER TO ESTIMATE THE AMOUNT OF CONTAMINATION  
BY MICRO-ORGANISMS, EXCRETA, DUST, &C.

Number of Sample.	Date of Collection.	Number of Cows.	Number of Cows.	Duration of Exposure.	RESULT OF EXAMINATION.	
					Mins.	Bacteria per Cubic Centimetre.
1	Mar. 25	B 37	7	15		Not estimated. All plates liquefied
2	"	B 36	8	40		Non-liquefying 530,000 } Liquefying 190,000 } 720,000
3	"	B 39	16	60		Non-liquefying 43,000 } Liquefying 170 } 43,570 Moulds 400 }
4	"	B 40	14	70		Non-liquefying 3,890,000 } Liquefying 30,000 } 3,920,000
*5	Mar. 26	24	16	30		Non-liquefying 45,300 } Liquefying 1,300 } 46,600
*6	"	41	16	25		Non-liquefying 49,000 } Liquefying 2,000 } 51,000
*7	"	11	5	20		Non-liquefying 49,000 } Liquefying 1,500 } 50,500
*8	"	42	14	35		Non-liquefying 69,500 } Liquefying 3,000 } 81,500 Moulds 9,000 }
9	May 15	B 36	8	20		Non-liquefying 875,000 } Liquefying 30,000 } 905,000
10	"	B 37	7	40		Non-liquefying 1,740,000 } Liquefying 325,000 } 2,065,000
11	"	B 38	12	45		Non-liquefying 10,000 } Liquefying 1,000 } 11,000
12	"	B 39	14	60		Non-liquefying 875,000 } Liquefying 30,000 } 905,000
13	Oct. 31	B 38	16	45		Non-liquefying 95,000 } Liquefying 7,666 } 102,666

\* Samples 5, 6, 7 and 8 were also examined for Tuberculosis

## OUTBREAK OF ANTHRAX IN A COWSHED.

On April 28th two valuable cows were taken suddenly ill at a dairy farm in the Borough, where nine cows were kept. They were immediately slaughtered, and their carcasses were removed to the Abattoir before the farmer was aware that the cows had suffered from Anthrax.

On April 29th blood from both cows was examined microscopically, and gave a positive result. I immediately visited the farm, and found that the temperatures of the remaining seven cows were normal and the animals apparently in good health. I kept the cows under observation for 10 days, and no further case occurred.

The cowshed, litter, utensils, and urine tank were disinfected in accordance with the provisions of the Anthrax Order of 1899.

## MIDDENSTEADS, URINE TANKS, AND YARDS AT DAIRY FARMS.

At several farms I found the middensteads and urine tanks in a very insanitary condition, and situated far too near the cowsheds. Both middensteads and urine tanks should be impervious and rain water excluded.

They ought to be placed at a distance of at least 40 feet from cowsheds and dairies, and should not be large, as it is undesirable to store great quantities of decomposing organic material near cowsheds and dairies.

Many of the farmyards are still unpaved. The yards in front of cowsheds should be paved, bricked, or flagged. Cobbled and unpaved yards cannot be kept clean either by swilling or sweeping.



## COWSHED INSPECTION.

The usual circular-letter sent by you on May 13th to all cowkeepers in the Borough, requiring the limewashing of cowsheds, has again been responded to in a satisfactory manner. Several farmers still continue to use dusty shoddy as a bedding for their cows, although I have pointed out to them that its use for such a purpose must contaminate the milk.

During the year I inspected 179 cowsheds, and found that the majority of them were kept in a cleanly condition.

On January 4th, 11th, and 31st I inspected the cowsheds, etc., at a farm in Blackburn, and on each occasion I found that the cowsheds and cows therein were kept in a filthy condition. I warned the farmer that legal proceedings would be taken against him if he did not in future keep his cowsheds, etc., clean.

## MAGISTERIAL PROCEEDINGS.

The farmer who had been repeatedly warned to keep his cowsheds and cows in a state of cleanliness was summoned to appear before the Magistrates on February 15th, and fined £3 and costs for keeping his cowsheds, etc., in a dirty condition on January 31st.

It is important that dairy cows should be kept clean, as it is impossible to obtain clean and pure milk if the cows' hind quarters, udders, and tails are dirty with excreta. I think that the long hair ought to be clipped from dairy cows' tails at the beginning of every winter.

Several cowsheds do not comply with the regulations prescribed, and a few minor improvements in lighting and ventilation have been made in some cases. In the case of a few of the most insanitary cowsheds, I am afraid that legal proceedings will require to be instituted before further improvements can be reported.

On several occasions during the past eighteen months I inspected a building (a cartshed) used as a cowshed, and found it overcrowded and without ventilation, etc. The farmer and his sons were repeatedly warned not to use this building for dairy cattle, but they still continued to do so.

The farmer was, therefore, summoned to appear before the magistrates on December 6th and fined 40s. and costs for using as a cowshed a building which did not comply with the regulations prescribed with respect to lighting, ventilation, air space, etc.

New regulations giving greater and more definite powers with regard to the cleanliness of cowsheds and dairy cows, diseased cows, lighting, ventilation, etc., are urgently required.

I am, Sir,

Your obedient Servant,

JAMES MILLER STIRLING,

M.R.C.V.S., D.V.S.M. (Vict.),

Veterinary and Chief Meat Inspector.

## SALE OF FOOD AND DRUGS ACT.

The largest number of samples purchased in Blackburn during 1907 under the above Act consisted of milk (168). It is of the utmost importance that the milk should be as of good quality as possible, since it is the main article of diet for young children and invalids.

Three hundred and seven samples were taken during the year, and of these 75 were informal samples; that is, they were not divided into three parts and sealed according to law. If the analysis of any informal sample showed adulteration, then an official sample was taken from the same vendor with all due observance of the Food and Drugs Act.

The following particulars relate to the new legislation during 1907 respecting this important work of a Health Department :—

### PUBLIC HEALTH (REGULATIONS AS TO FOOD) ACT

(7 Edw. 7; Chap. 32).

This very important little Act was passed to enable regulations to be made by the Local Government Board for the prevention of danger arising to public health from the importation, preparation, storage, and distribution of articles of food. The inadequacy of the existing law on this subject was disclosed when an effort was made, after the Chicago meat-packing scandals, to secure proper supervision, not only of our imported but also of our home-produced food products. Moreover, under the existing law unwholesome food must be actually exposed for sale for human food before it can be seized and destroyed.

Under Section 1 of the new Act :—

(1) The power of making regulations under the Public Health Act, 1896, and the enactments mentioned in that Act, shall include the power of making regulations authorising

measures to be taken for the prevention of danger arising to the public health from the importation, preparation, storage, and distribution of articles of food or drink (other than drugs or water) intended for sale for human consumption, and, without prejudice to the generality of the powers so conferred, the regulations may :—

- (a) Provide for the examination and taking of samples of any such articles.
- (b) Apply, as respects any matters to be dealt with by the Regulations, any provision in any Act of Parliament dealing with the like matters, with the necessary modifications and adaptations.
- (c) Provide for the recovery of any such charges authorised to be made by the Regulations for the purposes of the Regulations or any services performed thereunder.

(2) For the purposes of Regulations made under this Act, articles commonly used for the drink or food of man shall be deemed to be intended for sale for human consumption unless the contrary is proved.

(3) In the application of this Act to Scotland, Part IV. of the Public Health (Scotland) Act, 1897, shall be substituted for the Public Health Act, 1896.

Section 2 provides that all Regulations made under this Act shall be laid as soon as may be before Parliament, and the Rules Publication Act, 1893, shall apply to such Regulations as if they were statutory rules within the meaning of Section 1 of that Act, and that Act as so applied shall, notwithstanding anything in Sub-section 5 of Section 1 thereof, extend to Scotland, with the substitution of a reference to the Edinburgh “Gazette” for the reference to the London “Gazette.”

The Act received the Royal Assent on 28th August, 1907, but no Regulations have yet (December, 1907) been made by the Local Government Board.

## BUTTER AND MARGARINE ACT

(7 Edw. 7 ; Chap. 21).

This measure, which was introduced in the House of Commons by Sir E. Strachey, as President of the Board of Agriculture and Fisheries, is the outcome of the report of the Select Committee on the Butter Trade, which was appointed by the House of Commons in March, 1906. Its object is to make further provisions with respect to the manufacture, importation, and sale of butter and margarine, and similar substances.

Section 1 provides for the registration of:—

- (a) Butter factories, that is to say, any premises on which by way of trade butter is blended, re-worked, or subjected to any other treatment, but not so as to cease to be butter ; and
- (b) Any premises on which there is manufactured any milk-blended butter, that is to say, any mixture produced by mixing or blending butter with milk or cream (other than condensed milk or cream), or on which there is carried on the business of a wholesale dealer in milk-blended butter.

Section 2 provides for the inspection of factories, and empowers any officer of the Board of Agriculture and Fisheries, or of the Local Government Board, to enter at all reasonable times any butter factory, and to inspect any process of manufacture, blending, re-working, or treatment.

Section 3 prohibits the keeping in a butter factory of any substance intended to be used for the adulteration of butter.

Section 4 limits to 16 per cent. the moisture permissible in butter and margarine, and to 24 per cent. the amount permissible in milk-blended butter ; and Section 5 makes it an offence to import butter containing more than 16 per cent. of



water, margarine containing more than 16 per cent. of water, or more than 10 per cent. of butter fat; milk-blended butter containing more than 24 per cent. of water; milk-blended butter, except in packages conspicuously marked with such name as may be approved by the Board of Agriculture and Fisheries for the purpose; butter, margarine, or milk-blended butter which contains a preservative prohibited by any Regulation made under this Act, or an amount of a preservative in excess of the limit allowed by any such Regulation.

Section 6 extends the power of making regulations under Section 4 of the Sale of Food and Drugs Act, 1899 (that is, the power given to the Board of Agriculture to make regulations for determining what deficiency in any of the normal constituents of genuine milk, cream, butter, or cheese, etc., shall raise a presumption that the article is not genuine), to making regulations as to the proportions of any milk-solid other than milk-fat in any sample of butter or milk-blended butter; and Section 7 empowers the Local Government Board to make regulations for prohibiting the use as a preservative of any substance specified in such regulations in the manufacture or preparation for sale of butter, margarine or milk-blended butter, or for limiting the extent to which preservatives may be used.

Section 8 provides for the marking of wrappers, etc., used in connection with margarine; and Section 9 provides for milk-blended butter being dealt with under such name or names as may be approved by the Board of Agriculture and Fisheries.

A new definition of "margarine" is prescribed in Section 13, namely, "Any article of food, whether mixed with butter or not, which resembles butter, and is not milk-blended butter."

The Act is to be read with the Sale of Food and Drugs Acts. It comes into operation on the 1st January, 1908.



## REPORT OF INSPECTOR OF NUISANCES.

Public Health Office,

51, Ainsworth Street,

Blackburn.

To the Medical Officer of Health.

Dear Sir,

I beg to submit to you the following Report of the Sanitary Work carried out during the year 1907.

## INHABITED VANS.

These dwellings have been fewer in number. They have generally settled upon the spaces in Furthergate, Newton Street, and Wrangling. Sixty-seven inspections have been made and strict enforcement of the cleanliness of the insides and the surroundings has been insisted upon, with the result that few complaints have been received. One tribe which settled behind Furthergate were of a very objectionable character, and by approaching the owner of the land I was enabled to have them cleared off at once. The vans in connection with the shows, etc., on the Market Ground and in the yards of the hotels were again visited, and all were found very clean and free from any infectious disease. The Wrangling van-dwellers again adopted the same measures as last year with regard to the clearing away of their refuse. It would greatly assist me in the control of these dwellings if byelaws were in force as in other towns.

## CANAL BOATS ACTS, 1887 and 1884.

In compliance with the Acts and Regulations, 202 canal boat inspections have been made during the year as compared with 200 in 1906, with the view of ascertaining whether such Regulations were being carried out or not.

Eleven infringements of these Acts have come under notice, namely :—

- Five masters without certificates.
- One boat unnumbered.
- One boat dirty.
- Two boats in a leaky condition.
- Two boats overcrowded.

Nine notices have been served notifying the owners of the infringements of the various clauses of the Local Government Board Regulations, and they have all been complied with, the certificates having been received or the boat re-inspected.

No infectious disease was met with, and therefore no detention of boats for disinfection and cleansing was required.

There are 107 boats on the register, eight new boats have been registered, and three boats have been re-registered through change of owners.

In the 202 boats, there were met with 377 males, 92 females, and 42 children. Forty-one of the children were under school age and one over school age, who was on a trip for his health.

Table XCVIII.—INSPECTION OF FOOD AND DRUGS.

Articles Analysed.	Number Analysed.	Result of Analysis.			Extent of Adulteration.	Result of Proceedings.
		Genuine	Adulterated	Doubtful		
Milk .....	168	144	24		$7\frac{1}{3}\%$ deprived of cream. $7\%$ parts of water $5\frac{2}{3}\%$ deprived of cream. $9\frac{1}{3}\%$ " $8\frac{1}{3}\%$ " $3\frac{1}{3}\%$ " $3\frac{1}{3}\%$ " $3\frac{1}{3}\%$ " $9\frac{1}{3}\%$ " $8\frac{1}{3}\%$ " $33\frac{1}{3}\%$ " $50\frac{1}{3}\%$ " $11\frac{1}{3}\%$ " $14\frac{1}{3}\%$ " $7\%$ " $22\%$ " $26\%$ " $19\frac{2}{3}\%$ " $22\frac{2}{3}\%$ " $23\frac{1}{3}\%$ " $1\frac{1}{3}\%$ " $55\%$ " $25\%$ watered. $2\frac{1}{2}$ grains of borates $\frac{3}{4}$ grains boracic acid. Slightly watered.	} Fined £2 & costs } Warned by letter. Do. Do. Do. Do. Do. Do. Do. Informal sample. Do. Do. Do. Warned by letter. Fined £10 & costs " £5 & costs " £5 & costs Dismissed. Summons with- drawn. Warned by letter } Informal sample ; } another submitted Warned by letter Do. Do.
Butter ....	47					
Coffee .....	28					
Pepper ....	13					
Lard .....	8					
Margarine	6					
Beer.....	9					
Jam .....	3	2	1		$3\frac{1}{2}$ grains per lb. of salicylic acid.	Fined 20s. & costs
Arrowroot.	3					
Carried forward	285	146	25	...		

TABLE XCVIII.—INSPECTION OF FOOD, &amp;c.—Continued.

Articles Analysed.	Number Analysed.	Result of Analysis.			Extent of Adulteration.	Result of Proceedings.
		Genuine.	Adulteration.	Doubtful.		
Brought forward	285	146	25	...		
Mustard ...	1					
Baking Powder	5					
Whiskey ...	2	1	1		3·4 % excess of water.	Fined £2 & costs
Tea .....	1					
Ground Ginger...	3					
Potted Beef...	2					
Patent Food..	2					
Honey .....	1					
Boiled Rabbit...	1					
Tinned Lobster	1					
Potted Lobster	1		1		75% Foreign fish.	Informal sample
Sweet Bread...	2					
Total	307	147	27	...		

## COMMON LODGING-HOUSES.

The present number of Common Lodging-Houses on the Register is 21, accommodating 910 adults and 20 children. No new house has been registered during the year.

Nine hundred and seventy-seven visits have been paid to these houses during the year. Cleanliness and good order have been well maintained. One case of Scarlet Fever has been reported from one of these houses.

The following is a list of the Common Lodging-Houses registered in the Borough :—

<i>Situation of Premises.</i>	<i>No. of Rooms.</i>	<i>No. Registered for.</i>
19 Larkhill Street .....	41	320 adults
66 Moor Street .....	20	93 „ and 6 children
6 and 8 Mount Pleasant... ..	8	95 „
7 and 9 Daisy Street ... ..	2	37 „
56 Chapel Street .....	7	37 „
104 Mary Ann Street .....	5	37 „ „ 1 child
74 and 76 Chapel Street .....	5	36 „
26 and 28 Penny Street .....	10	33 „ „ 9 children
86 to 92 Chapel Street .....	7	35 „ „ 1 child
54 Syke Street .....	6	32 „
33 Joiners Row.....	4	25 „
59 Water Street .....	5	25 „ „ 2 children
30 and 32 Leyland Street.....	4	20 „
13 Grimshaw Park .....	3	18 „
8 Cowell Street.....	2	16 „
33 Larkhill Street .....	3	16 „ „ 1 child
7 Albion Yard .....	3	16 „
26 Bradshaw Street.....	3	18 „
83 Moor Street .....	3	11 „
47 Nab Lane .....	2	8 „
49 „ „ .....	2	12 „

## HOUSES LET IN LODGINGS.

There are 60 of these houses on the Register, containing 183 rooms and accommodating 416 adults and 70 children. They have been inspected weekly, 2,436 visits having been paid during the year, and the cleanliness strictly enforced. The yearly whitewashing have in all cases been carried out. In one

house only has there been any infectious disease notified, namely, two cases of Diphtheria, both of which were immediately removed to hospital and the house washed down with a disinfectant.

### COMPLAINTS FROM THE PUBLIC.

Three hundred and thirty-eight complaints have been received. They have been promptly investigated and the necessary action taken for their abatement.

### SMOKE OBSERVATION OF FACTORIES.

Two hundred and sixty-one observations of one hour's duration have been taken, of which 25 exceeded the limit allowed.

Twenty-five notices to abate the nuisance caused by the emission of black smoke were served. Eight mills have adopted mechanical stokers, numbering in all 14 sets, since the issue of these notices, and four mills have made alterations to their boilers.

The following is a table showing the results obtained and the action taken :—



TABLE XCIX.—SMOKE OBSERVATIONS.

Name of Mill	Result of Observation			No. of Boilers.	If Stokers.	Action taken.
	B.	F.	N.			
Garden Street 1.....	10 $\frac{1}{2}$	30 $\frac{1}{2}$	19	2	1 boiler with stokers and 1 boiler hand fired	Notice sent
„ 2.....	4 $\frac{1}{2}$	31 $\frac{1}{2}$	24	2	...	Notice
„ 3.....	...	15	45	...	...	
„ 4.....	7	29	24	...	...	
Bank Top 1.....	3	29	28	1	Yes	Notice
„ 2.....	2 $\frac{1}{2}$	31 $\frac{1}{2}$	26	...	..	
„ 3.....	...	17	43	...	...	
Havelock 1.....	...	13	47	1	No	Notice
„ 2.....	...	26	34	...	...	
„ 3.....	...	35	25	...	...	
„ 4.....	...	35	25	...	...	
Hollin Bank (Ring) 1	2	31	27	2	Yes	Notice
„ „ 2	9	27 $\frac{1}{2}$	23 $\frac{1}{2}$	...	...	
„ „ 3	1	35	24	...	...	
Hollin Bank W'ving 1	1 $\frac{1}{2}$	22 $\frac{1}{2}$	36	1	Yes	Notice
„ „ 2	...	41	19	...	..	
Belle Vue 1.....	3 $\frac{1}{2}$	46 $\frac{1}{2}$	10	1	No	
„ 2.....	1 $\frac{1}{2}$	38 $\frac{1}{2}$	20	...	...	
„ 3.....	6 $\frac{1}{2}$	13 $\frac{1}{2}$	40	...	...	Notice
Peel.....	...	40	20	1	Yes	
Commercial, George Street West 1	2 $\frac{1}{2}$	27 $\frac{1}{2}$	30	1	No	Notice
„ 2	3	24	33	...	...	
Duckworth Field 1...	...	35	25	1	Yes	
„ 2.....	...	27	33	...	...	
Moorgate Heald W'ks 1	5	19	36	1	No	Notice
„ 2	2	11	47	...	...	
Hamer's Moorgate 1...	...	26	34	2	No	
„ 2.....	...	33	27	...	...	Notice
„ 3.....	...	27	33	...	...	
Bridge 1.....	3 $\frac{1}{2}$	33	23 $\frac{1}{2}$	1	No	
„ 2.....	$\frac{1}{2}$	20 $\frac{1}{2}$	39	...	...	
„ 3.....	3	27	30	...	...	Notice
„ 4.....	2	25	23	...	...	
Pioneer 1.....	...	29	31	1	Yes	
„ 2.....	1	30	29	...	...	Notice
Grange 1.....	1	24	35	1	Yes	
„ 2.....	3 $\frac{1}{2}$	28 $\frac{1}{2}$	28	...	...	

## SMOKE OBSERVATIONS continued.

Name of Mill.	Result of Observation			No. of Boilers	If Stokers.	Action taken.
	B.	F.	N.			
Primrose 1.....	4	25½	30½	2	No	Notice
„ 2.....	1	29	30	...	...	
„ 3.....	11½	34½	14	...	...	
Cardwell 1.....	...	47	13	3	Yes	
„ 2.....	...	22	38	...	...	
„ 3.....	4½	35½	20	...	...	
Waterloo 1.....	...	30	30	1	No	Notice
„ 2.....	1½	36½	22	...	...	
„ 3.....	2	41	17	...	...	
Albert 1.....	1	32	27	1	Yes	
„ 2.....	2½	21½	36	...	...	
„ 3.....	1	33	26	...	...	
Waste Works, Johnston Street 1...	...	35	25	1	No	Notice
„ „ 2...	...	22	38	...	...	
Wensley Fold.....	1	37	22	1	Yes	
Lancaster Street 1...	2	30	28	1	No	
„ „ 2...	...	34	26	...	...	
Albion 1.....	1	34	25	3	Yes	
„ 2.....	...	27	33	...	...	Notice
Walsh's Foundry 1.....	...	31	29	1.	No	
„ 2.....	1	36	23	...	...	
Griffin 1.....	5	39	16	6	No	
„ 2.....	...	39	21	...	...	
Mill Hill 1.....	2	33	25	4	No	
„ 2.....	3½	39½	17	...	...	Notice
Waterfall.....	1	35	24	1	No	
Bank Top Foundry, Pump Street.....	...	25	35	1	No	
Turner Street... ..	3	28	29	1	No	
Roe Lee 1.....	1½	38½	20	2	No	
„ 2.....	9	31	20	...	...	
Crystal Spring Dye Works 1..	2	44	14	1	No	Notice
Boundary 1.....	5½	27	27½	1	No	
„ 2.....	...	47	13	...	Yes	
Ward Street 1.....	3	20	37	2	Yes	
„ 2.....	6½	35	18½	...	...	
„ 3.....	½	21½	38	...	...	

## SMOKE OBSERVATIONS continued.

Name of Mill.	Result of Observation			No. of Boilers	If Stokers.	Action taken.
	B.	F.	N.			
Duxbury Street 1.....	9½	36½	14	5	No	Notice sent
„ 2.....	...	60	...	5	Yes	
Eanam Brewery 1.. ..	1½	31½	27	3	No	Notice sent
„ 2.....	...	39	21	3	No	
Canal Foundry (No. 1) ...	...	33	27	1	No	Notice sent
„ (No. 2) 1	11½	30½	18	1	No	
„ 2	...	30	30	1	No	Notice sent
Fisher Street 1.....	1½	55½	3	1	Yes	
„ 2.....	8	46	6	1	Yes	Notice sent
Quarry Street 1.....	...	40	20	3	No	
„ 2.....	4½	34½	21	3	No	Notice sent
Fisher Street Shuttle Works.....	...	15	45	1	No	
Limbrick Mill 1.....	2½	26½	31	1	No	Notice sent
„ 2 .....	3½	24½	32	1	No	
Randal Street Heald Works 1	...	23	37	1	No	Notice sent
„ „ 2	4½	16½	39	1	No	
Canal, George St. East 2	2	28½	29½	1	No	Notice sent
Moor Street Bakery... 1	...	19	41	1	No	
Gorse Bridge 1 .....	1½	45½	13	1	No	Notice sent
„ 2 .....	9½	33½	17	1	No	
Imperial 1 .....	6	37	17	4	No	Notice sent
„ 2 .....	9½	37½	13	...	...	
Cobden Street 1 .....	...	31	29	1	No	Notice sent
„ 2 .....	...	38	22	...	...	
Bright Street 1 .....	...	26	34	1	No	Notice sent
„ 2 .....	4	25	31	1	No	
Stanley Street 1.....	1½	22½	36	3	No	Notice sent
„ 2.....	...	16	44	3	No	
Plantation .....	1½	36½	22	2	Yes	Notice sent
Navigation 1.....	1½	43½	16	4	No	
„ 2.....	12	48	...	4	No	Notice sent
Royshaw 1.....	...	35	25	1	No	
„ 2... ..	2½	26	31½	1	No	Notice sent
Cedar Street .....	...	21	39	1	No	
Brookhouse 1 .....	...	31	29	5	No	Notice sent
„ 2 .....	...	33	27	5	No	
Greenbank Iron W'ks. 1	9	26	25	1	No	Notice sent
„ „ 2	...	39	21	1	No	

## SMOKE OBSERVATIONS—continued.

Name of Mill.	Result of Observation			N. of Boilers.	If stokers.	Action taken.
	B.	F.	N.			
Greenbank Bobbin Works.....	2½	39½	18	1	No	
Greenbank ... ..	..	41	19	1	No	
Cecil and Daisy St. 1 ..	..	24	36	2	No	
" " 2 ..	..	25	35	2	No	
Wellfield.....	½	25	34½	1	No	
Bastfield .....	10	26	24	2	No	Notice sent
Oozebooth .....	½	22½	37	1	No	
Bastwell Dye Works..	6½	23	30½	1	No	Notice sent
Royal .....	2	37	21	1	Yes	
Moss Street ... ..	1	45	14	2	No	
Greenbank Destructor ...	..	35	25	1	No	
Carr Cottage.....	..	21	39	1	No	
Florence ... ..	1½	20½	38	1	No	
Calcutta Mill Co. ....	3	10	47	2	No	
Shackleton's Corn Mill ...	..	6	54	1	Yes	
Wind Mill Works...	2	11	47	1	No	
Higher Audley Street	2	12	46	3	No	
Cicely Bridge... ..	3½	10½	46	3	No	
Canton .....	2½	11½	46	1	No	
Lambeth Street Rope Works .....	..	9	51	2	No	
Audley Hall ... ..	11	23	26	2	Yes	Notice sent
Audley Bridge .....	4	13	43	1	..	
Columbia 1 .....	1	12	47	1	No	
" 2 .....	2	7½	50½	1	No	
" 3 .....	..	10	50	..	..	
Commercial 1 .....	2	18	40	1	Yes	
" 2 .....	2	10	48	..	..	
" 3 .....	1	18	41	..	..	
Duke Street ... ..	..	7½	52½	1	Yes	
Moorbrook ... ..	..	6	54	1	No	
George Street West...	2	15	43	1	No	
Harley Street 1.....	..	31	29	1	Yes	
" 2.....	..	13	47	..	..	
Bridgewater .....	4	18	38	2	No	
Alma ... ..	2	18	40	1	No	
Audley Range 1 .....	3	17	40	1	No	
" 2 .....	3	26	31	..	..	
" 3.....	3	11½	45½	..	..	

## SMOKE OBSERVATIONS—continued.

Name of Mill.	Result of Observation			No. of Boilers.	If Stokers	Action taken.
	B.	F.	N.			
Parkside Manufac. Co	2½	13½	44	1	No	Notice
Ordnance 1.....	4	19	37	3	No	
„ 2.....	6	19	35	...	...	
„ 3.....	9½	23½	27	...	...	
India 1 .....	2	18	40	2	No	
„ 2.....	2½	20½	37	...	..	
„ 3...	2½	15½	42	...	...	
Chemical Works 1	2½	17½	40	2	No	
„ 2 ...	1½	14½	44	...		
„ 3 ...	2	14	44			
Furthergate 1 .....	2½	17½	40	3	No	
„ 2... ..	2	16	42	...	..	
„ 3... ..	2½	13½	44	...	...	
Bankfield 1.....	...	59	1	2	Yes	
„ 2.....	...	9	51	...	...	
Hart St. Dobby Works	...	9	51	1	No	
Cobden .....	3	13	44	1	No	
Dewhurst St. 1.. ..	3	13	44	1	No	
„ 2.....	3½	16½	40	...	.	
„ 3.....	3½	13½	43	...	...	
Rosehill Foundry 1 ..	1½	10½	48	1	No	
„ 2 ..	1	5	54	...		
Lower Darwen 1 .....	...	9	51	2	Yes	
„ 2 .....	...	9	51	...	...	
Unity 1 .....	...	20	40	1	Yes	
„ 2 .....	...	14	46	...	...	
Whitebirk Brick W'ks	1½	13½	45	1	No	
„ Bleach „	2½	17½	40	1	No	
Holehouse 1... ..	3	15	42	1	No	
„ 2.....	3	12	45	...	...	
„ 3 .....	2½	14½	43	...	...	
Harwood Street 1 .....	4	17	39	2	No	
„ 2 .....	3½	12½	44	...		
Eanam Bridge : .....	3½	17½	39	1	No	
„ 2 ...	2½	24½	33	...		
Prospect 1.. ..	3	15	42	1	No	
„ 2 .....	2½	13½	44	...	..	
Albert Mill (C.N.) ...	3½	14½	42	2	No	
Jubilee 1 .....	3½	12½	44	1	No	
„ 2.....	3½	18½	38	...	...	
„ 3... ..	3	17	40	...	...	

## SMOKE OBSERVATIONS continued.

Name of Mill	Result of Observation			No. of Boilers.	If Stokers.	Action taken.
	B.	F.	N.			
Alexandra 1 .....	2½	13½	44	1	No	
„ 2 .....	3	16	41	..	..	
Paradise 1 .....	2	17	41	4	Yes	
„ 2 .....	1½	15½	43	...	...	
„ 3 .....	3	18	39	...	...	
Albert Mill Co. 1.....	1½	14½	44	2	No	
„ 2.....	3	16	41	..	...	
Salisbury Mill Co....	...	7	53	1	Yes	
Fountain.....	...	10	50	1	No	
Greenlow .....	...	4	56	1	Yes	
Greenbank 1 .....	9½	21½	29	2	Yes	Notice sent
„ 2 .....	...	30	30	..	..	
Brunswick .....	...	11	49	1	Yes	
Unity .....	...	15	45	1	No	
Canterbury Street.....	...	...	...	...	...	
Dye Works 1.....	...	36	24	2	No	
„ „ 2.....	2	11	47	..	...	
Canterbury St. Fou'dry	2½	6½	51	1	No	
Simmons St. Laundry 1...	...	11	49	1	No	
„ „ 2 .....	..	12	48	...	...	
Randal St. Saw Mill...	3	18	39	1	No	
Salford New Brewery 1 ..	..	20	40	1	Yes	
„ „ „ 2 .....	2	7	51	...	..	
Starkie St. Corn Mill 1	3	51	6	1	No	
„ „ 2 .....	3	6	51	...	...	
Grimshaw Park Brick Works 1...	8	6½	45½	1	No	Notice sent
„ „ 2.....	1½	12	46½	...	...	
St. Peter Street 1.....	6	6	48	1	No	Notice sent
„ „ 2.....	½	20½	39	...	...	
Atlantic .....	...	7	53	1	No	
Northgate Rope W'ks. ....	...	21	39	1	No	
Cumpstey Street 1 .....	2	20	38	1	Yes	
„ 2 .....	...	9	51	...	..	
Paterson Street .....	1½	19½	39	1	No	
Novas Scotia .....	2	10	48	2	No	
George Street West (Tripe Works)...	7	13	40	1	No	Notice sent
Crossfield ... ..	3	13	44	2	No	
Highfield 1 .....	4	11	45	2	No	
„ 2.....	2½	13	44½	...	...	
„ 3 .....	20	1½	38½	..	...	



## SMOKE OBSERVATIONS—Continued.

Name of Mill.	Result of Observation			N <sup>o</sup> . of Boilers.	If Stokers.	Action taken.
	B.	F.	N.			
Wellington (New) 1...	...	9½	50½	2	No	
„ „ 2...	4	13	43	...	...	
„ „ 3...	3	22	35	...	...	
„ „ 4...	2	10	48	...	...	
„ „ 5...	4	17	39	...	...	
Wellington (Old) 1...	...	7	53	1	Yes	
„ „ 2...	...	14½	45½	...	...	
„ „ 3...	...	14	46	...	...	
Armenia 1.....	...	8	52	2	No	
„ 2.....	...	10	50	...	...	
„ 3.....	1½	14	44½	...	...	
„ 4.....	1	16	43	...	...	
„ 5.....	...	6	54	...	...	
Chadwick Street 1...	...	42½	17½	1	Yes	
„ 2...	...	10	50	...	...	
„ 3...	...	14	46	...	...	
„ 4...	...	16	44	...	...	
Park Bridge .....	...	17	43	2	Yes	
Park Place .....	3	22	35	4	No	
Novas New Brewery 1	3	12	45	1	Yes	
„ „ 2...	...	31	29	...	...	
Britannia 1.....	...	5	55	1	Yes	
„ 2.....	...	10	50	...	...	
„ 3.....	...	7	53	...	...	
Infirmity Mill 1.....	8	11½	40½	1	Yes	Notice
„ 2.....	...	31	29	...	...	
Victoria 1 .....	1	21	38	1	Yes	
„ 2 .....	...	12½	47½	...	...	
Albert Mill, Hall St....	...	4	56	2	No	
Rockfield 1.....	...	3	57	1	Yes	
„ 2.....	...	7	53	...	...	
Sharples St. Bolt W'ks	1	12	47	1	No	

## DISINFECTION.

Eight hundred and ninety-one rooms at seven hundred and seventy-eight houses have been disinfected after cases of infectious diseases, 728 being washed down with chloros and 163 fumigated with formalin vapour.

Four rooms at one school have been fumigated after an outbreak of Measles.

Twenty-one rooms at the Fever Hospital have been disinfected. One shippon and one stable have been washed down after Anthrax.

One thousand five hundred and ninety-eight visits to infected houses were made for the purpose of supplying disinfectants and 328 typhoid pails from patients isolated at home were collected and their contents burnt at the Destructor.

The following articles have been disinfected by steam :—

1,143 beds.  
1,324 mattresses.  
1,058 bolsters.  
1,616 pillows.  
1,742 quilts.  
1,620 blankets.  
940 sheets.  
1,856 suits of clothes.  
645 carpets.  
184 rugs.  
760 curtains.  
4,592 sundries.

The following articles have been removed to the Destructor and destroyed by consent of the owners :—

58 mattresses, 24 beds, 7 bolsters, 10 pillows, 1 quilt, 2 blankets, 2 rugs, 3 suits, 2 curtains, and 31 sundries.

One hundred and sixty-three Library and other books have been fumigated.

TABLE C.

## DESCRIPTION OF VISITS.

District—	I	2	3	4	TOTAL.
Visits to Common Lodging Houses .....	39	251	284	403	977
Houses let in Lodgings ...	816	499	297	824	2436
Common Yards, Back Roads and Passages ..	4422	1305	1827	3350	10904
<i>Re</i> Infectious Diseases ...	999	596	625	396	2616
Visits to Chip Shops, Greengrocers, etc. ..	571	53	130	163	917
Dwelling-houses inspected	2059	1991	2221	1721	7992
Work in Progress .....	555	1074	545	659	2833
Horse-Manure Middens	836	511	422	370	2139
Cowsheds and Dairies...	...	7	11	12	30
Deaths from Diarrhoea ...	9	15	16	24	64
School Inspection .....	...	29	27	...	56
<i>Re</i> Feeding of Infants ..	51	...	72	87	210
Ice Cream Shops .....	16	30	31	30	107
Investigation of Nuisances	162	237	208	128	735
Smoke Observations ...	67	59	65	70	261
Miscellaneous .....	24	83	109	158	374

TABLE CL.

DESCRIPTION OF NOTICES ISSUED AND NUISANCES  
REMEDIED.

District —	1	2	3	4	Total.
Preliminary Notices served .....	284	359	203	251	1097
Legal " " .....	41	158	39	66	304
Nuisances remedied from—					
Defective Drains .....	65	25	22	26	138
Choked " .....	69	86	63	40	258
Defective Water Closets .....	67	19	25	32	143
" Pail " .....	59	2	...	10	71
" Slop Water Closets .....	25	6	19	6	56
" Trap Gullies.... ..	38	14	8	6	66
" Sink Waste Pipes .....	111	74	33	25	243
" W.C. Cisterns and Flushing Fittings .....	78	30	31	25	164
" Urinals .....	...	...	...	2	2
" Easing Troughs & Downspouts	110	13	32	39	194
" Soil Pipes..... ..	...	5	...	...	5
" Dishstones re-set.....	45	11	15	15	86
Sink Pipes connected to Drains .....	2	3	...	...	5
Yards unflagged .....	54	50	64	75	243
Cellars " .....	...	1	...	...	1
Yards sunken or badly paved .....	93	92	10	53	248
Houses overcrowded .....	1	6	...	7	14
Houses, Yards, Closets, and Cellar Areas in a filthy state .....	24	29	27	50	130
Damp and defective house walls, roofs, &c. ...	67	31	33	16	147
Insufficient Ventilation of Rooms .....	5	5	...	14	24
Defective Manure Middensteads.....	...	1	2	...	3
Accumulation of Manure .....	836	486	422	348	2092
" Offensive Matter .....	6	18	6	1	31
" Stagnant Water .....	6	1	...	...	7
Dwelling-houses whitewashed.....	146	54	126	170	496
Poultry, &c., and Erections in Yards removed	44	11	14	5	74
Ash Tubs provided or repaired .....	98	66	45	59	268
Ash Pits and Pail Receptacles repaired .....	13	23	...	12	48
Street Gullies, Ashpits, etc., reported to Cleansing Department .....	237	91	56	75	459

# WORK VISITED AND ORDERED BY THE HEALTH SUB-COMMITTEE.

Conversion of privies .....	276
Houses closed as unfit for habitation .....	19
Houses to be altered or closed .....	19
Demolition of dangerous and obstructive dwellings...	13
Unpaved and badly-paved yards .....	214
Insufficient closet accommodation .....	3
Recission orders .....	3
Erections in yards .....	11
Back roads and passages .....	8

I am, Sir,

Yours obediently,

JAMES GRAHAM, Cert., R.S.I.,

Chief Sanitary Inspector.

## TABLE CII.

Population and Death-Rates of the various Sub-Districts and constituent Enumeration Districts (as extended in 1901) for the year 1907 :—

### NORTHERN.

Enumeration District.	Population at 1901 Census.	Death-rate for 1907.
No. 1 .....	1011 .....	13.8
2 .....	1020 .....	13.7
3 .....	583 .....	17.1
4 .....	1322 .....	15.1
5 .....	1191 .....	11.7
6 .....	872 .....	25.2
7 .....	729 .....	13.7

Enumeration District.	Population at 1901 Census.	Death-rate for 1907.
8	1131	15.0
9	565	14.1
10	869	10.3
11	1205	22.4
12	1148	17.4
13	929	11.8
14	1166	18.0
15	1049	22.8
16	1227	8.9
17	1076	17.6
18	741	12.1
19	847	24.7
20	1011	15.8
21	907	13.2
22	1152	19.9
23	1011	12.8
24	967	11.3
25	1126	27.5
26	1146	11.3
27	839	14.3
28	1414	19.8
29	995	23.1
30	1133	38.8
31	1227	27.7
32	1098	21.8
33	620	16.1
34	873	16.0
35	1051	34.4
36	859	12.8
37	936	14.9
38	1177	16.1
39	908	9.9
40	1223	7.2
41	1055	11.3
42	793	11.3
43	474	25.3
44	1019	28.4



Enumeration District.	Population at 1901 Census.	Death-rate for 1907.
45	1240	18.5
46	859	23.2
47	1024	8.7
48	1278	18.7
49	1592	16.3
50	946	15.8
51	946	21.1
52	1306	10.7
53	1436	25.7
54	1322	29.5
55	1098	16.3
56	1191	14.2
57	1343	17.8
58	1283	12.4
59	1009	18.8
60	1004	7.9

## SOUTHERN.

No. *1	636	64.4
2	584	35.9
3	631	12.6
4	1028	23.3
5	743	17.4
6	597	8.3
7	399	17.5
8	755	11.9
9	557	17.9
10	816	19.5
11	1137	16.7
12	1213	18.1

\* The large Common Lodging-house in Larkhill Street is situated in this district, and has accommodation for about 320 lodgers. During the year 12 deaths occurred belonging to this Lodging-house, and this accounts for the high death-rate in this District.

Enumeration District.	Population at 1901 Census.	Death-rate for 1907.
13	870	24.1
14	1072	18.6
15	720	30.5
16	799	25.0
17	1454	15.1
18	1215	17.2
19	1317	9.8
20	611	22.9
21	1438	25.0
22	1016	19.7
23	1346	19.3
24	1294	13.1
25	2369	16.8
26	775	32.2
† 27	1118	14.3
28	955	12.5
29	923	21.6
30	1299	10.7
31	615	22.7
32	690	25.9
33	655	6.1
34	909	7.7
35	1129	18.6
36	646	12.3
37	970	26.8
38	1120	11.6
39	458	17.4
40	472	25.4
41	830	16.8
42	465	32.2
43	1277	15.6
44	1461	22.5
45	980	19.3

† The Union Workhouse is situated in this District, and during the year eight deaths occurred of persons whose address previous to admission could not be ascertained.

Enumeration District.	Population at 1901 Census.	Death-rate for 1907.
46 .....	1039 .....	19.2
47 .....	1131 .....	21.2
48 .....	1023 .....	12.7
49 .....	605 .....	26.4

## WITTON AND LIVESEY.

No. 1 .....	1240 .....	25.8
2 .....	1197 .....	11.6
3 .....	1076 .....	14.8
4 .....	953 .....	18.8
5 .....	1043 .....	12.4
6 .....	958 .....	18.7
7 .....	1036 .....	28.9
8 .....	1190 .....	17.6
9 .....	1115 .....	16.1
10 .....	1301 .....	12.2
11 .....	820 .....	7.3
12 .....	827 .....	24.1
13 .....	891 .....	21.3
14 .....	892 .....	10.0
15 .....	989 .....	13.1
16 .....	932 .....	12.8
17 .....	735 .....	20.4
18 .....	1056 .....	13.2
Part of 19 .....	144 .....	20.8
„ 20 .....	196 .....	27.5
„ 24 .....	194 .....	20.6



### Causes of Death in the County Borough of Blackburn during the Year 1907.

## ESTIMATED POPULATION TO THE MIDDLE OF 1907, 134,438.

[illegible]

No.	Disease	Males	Females	Total
26	Malarial Fever .. .	..	..	..
27	Rheumatic Fever .. .	..	..	..
28	Rheumatism of the Heart..	..	..	..
29	Tuberculosis of Brain or Meninges, Acute Hydrocephalus .. .	8	17	25
30	Tuberculosis of Larynx .. .	..	..	..
31	Tuberculosis of Lungs .. .	1	1	2
32	Tuberculosis of Intestines, Tabes Mesenterica .. .	18	10	28
33	General Tuberculosis .. .	2	2	4
34	Other Forms of Tuberculosis, Scrofula .. .	1	..	1
35	Other Infective Diseases .. .	..	..	..
36	Thrush .. .	..	..	..
37	Actinomycosis .. .	..	..	..
38	Hydatid Diseases .. .	..	..	..
39	Scurvy .. .	..	..	..
40	Other Diseases Due to altered Food .. .	..	..	..
41	Acute Alcoholism, Delirium Tremens .. .	..	..	..
42	Chronic Alcoholism .. .	..	..	..
43	Chronic Industrial Poisoning .. .	..	..	..
44	Other Chronic Poisonings .. .	..	..	..
45	Osteo-Arthritis, Rheumatoid Arthritis .. .	..	..	..
46	Gout .. .	..	..	..
47	Cancer .. .	1	..	1
48	Diabetes Mellitus .. .	..	..	..
49	Purpura Hæmorrhagica .. .	..	..	..
50	Hæmophilia .. .	..	..	..
51	Anæmia, Leucocythæmia .. .	1	..	1
52	Lymphadenoma, Hodgkin's Disease .. .	..	..	..
53	Premature Birth .. .	77	..	77
54	Injury at Birth .. .	1	..	1
55	Debility at Birth .. .	16	..	16
56	Atele tasis .. .	9	1	10
57	Congenital Defects .. .	21	2	23
58	Want of Breast Milk .. .	..	..	..
59	Atrophy, Debility, Marasmus .. .	48	3	51



## CAUSE OF DEATH.

## AGES.

	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 60	60 to 65	65 to 75	75 to 85	85 and upwds	All Ages.		Total
															M	F	
60 Denition .. .. .	17	8	..	..	..	..	..	..	..	..	..	..	..	..	12	13	25
61 Rickets .. .. .	2	4	..	..	..	..	..	..	..	..	..	..	..	..	4	2	6
62 Old Age, Senile Decay ..	..	..	..	..	..	..	..	..	2	1	11	57	79	11	63	98	161
63 Convulsions .. .. .	22	6	..	..	..	..	..	..	..	..	..	..	..	..	13	15	28
64 Meningitis .. .. .	5	..	..	3	..	..	1	..	..	..	..	..	..	..	4	5	9
65 Encephalitis .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	4
66 Apoplexy, Cerebral Hemorrhage ..	1	..	..	2	2	..	3	1	10	17	41	16	2	2	50	67	117
67 Softening of Brain .. .. .	..	..	..	..	..	..	..	3	1	5	5	1	..	..	8	8	12
68 Hemiplegia, Brain Paralysis ..	..	..	..	..	..	..	..	2	4	4	4	5	1	..	9	15	24
69 General Paralysis of Insane ..	..	..	..	..	..	..	..	4	4	..	..	..	..	..	6	2	8
70 Other Forms of Insanity .. .. .	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	1
71 Chorea .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
72 Cerebral Tumour .. .. .	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3
73 Epilepsy .. .. .	..	..	..	..	1	2	1	1	1	1	1	..	..	..	4	3	7
74 Laryngismus Stridulus .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
75 Locomotor Ataxy .. .. .	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
76 Paraplegia, Diseases of Spinal Cord ..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	2
77 Other and ill-defined (Paralysis Agitans, Peripheral Neuritis, Multiple Peripheral or Nervous System) Neuritis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
78 Otitis, Otorrhœa .. .. .	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1
79 Diseases of Nose, Epistaxis .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
80 Diseases of Eye, Ophthalmia .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
81 Pericarditis .. .. .	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	2
82 Endocarditis, Valvular Diseases of the Heart ..	1	1	3	6	2	6	6	10	10	6	7	18	4	..	21	59	80
83 Hypertrophy of Heart .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
84 Angina Pectoris .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
85 Aneurism .. .. .	..	..	..	..	..	..	1	..	1	1	..	..	..	..	3	..	3
86 Senile Gangrene .. .. .	..	..	..	..	..	..	..	..	1	1	3	..	2	1	4	3	7
87 Embolism, Thrombosis .. .. .	..	..	..	1	..	..	..	..	2	1	..	4	..	..	3	5	8
88 Phlebitis .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
89 Varicose Veins .. .. .	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	1
90 Diseases of Heart (Other and ill-defined) Fatty Degeneration ..	..	..	..	..	..	..	..	1	1	1	2	2	..	..	5	2	7
and Circulatory (Cardiac Dilatation ..	..	..	1	..	..	..	..	..	1	1	..	2	..	..	2	2	4
Atheroma .. .. .	..	..	..	1	..	..	..	..	..	..	1	3	..	..	2	2	4
System (Heart Disease undefined ..	3	..	..	..	..	..	3	9	12	11	12	22	8	..	44	38	82



# AGES

## CAUSE OF DEATH.

	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 60	60 to 65	65 to 75	75 to 85	85 and upwos	All Ages		Total
															M	F	
121 Diseases of Testis and Pents	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
122 Diseases of Ovaries	..	..	..	..	..	..	..	2	..	..	..	1	..	..	..	5	5
123 Diseases of Uterus and Appendages	..	..	..	..	..	1	..	1	..	..	1	..	..	..	..	3	3
124 Diseases of Vagina and External Genital Organs	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
125 Diseases of Breast	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
126 Abortion, Miscarriage.	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	2
127 Puerperal Mania	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	2	2
128 Puerperal Convulsions	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
129 Placenta Prævia, Flooding	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
130 Puerperal Thrombosis	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1
131 Other and ill-defined Accidents and Diseases of Pregnancy and Child Birth	..	..	..	1	1	5	4	..	..	..	..	..	..	..	..	11	11
132 Arthritis, Ostitis, Periostitis	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1
133 Other and ill-defined Diseases of Osseous System	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
134 Ulcer, Bed sore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
135 Eczema	3	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	3
136 Pemphigus	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
137 Other and ill-defined Diseases of Integumentary System	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

## DEATHS FROM EXTERNAL CAUSES: By Accident or Negligence.

139 Vehicular Traffic	..	1	..	1	..	..	1	..	1	..	2	..	..	..	5	1	6
140 On Railways	..	..	..	1	..	1	..	..	..	..	..	..	..	..	2	..	2
142 Building Operations	..	..	..	..	..	..	1	1	1	..	..	..	..	..	2	..	2
143 By Machinery	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	2
145 Burns and Scalds	..	15	1	1	1	..	..	..	..	1	..	1	..	..	11	8	19
146 Poisons, Poisonous Vapours	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	1	3
150 Drowning	..	1	..	1	..	..	..	..	..	..	..	..	..	..	2	..	2
151 Suffocation, Overlaid in Bed	6	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1	6
152 Suffocation, otherwise	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
153 Falls, not specified	..	2	..	..	1	2	3	3	3	3	..	5	..	..	13	6	19
155 Otherwise and not stated	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	1

## 156 Homicide

## SUICIDES, all Forms

[illegible]







SHEWING WEIGHTS OF CHILDREN FED AT MARY ANN STREET.

[illegible]

NOTE.—Some of the above children are still being taken to the Restaurant.





# LOCAL GOVERNMENT BOARD.

TABLE I.—Vital Statistics of Whole District during 1907 and Previous Years.

Name of District: *BLACKBURN.*

Year.	Population estimated to Middle of each Year.	BIRTHS.		TOTAL DEATHS REGISTERED IN THE DISTRICT.				TOTAL DEATHS IN PUBLIC INSTITUTIONS IN THE DISTRICT.	Deaths of Non-Residents registered in Public Institutions in the District.		Deaths of Residents registered in Public Institutions beyond the District.		NETT DEATHS AT ALL AGES BELONGING TO THE DISTRICT.	
		Number	Rate.*	Under 1 Year of Age.		At all Ages.			10	11	12	Rate.*		
				Number.	Rate per 1,000 Births registered	Number.	Rate.*							
1	2	3	4	5	6	7	8	9						
1897	124675	3629	29.1	752	207.2	2605	20.8	301	76	...	2529	20.2		
1898	125430	3662	29.1	750	204.8	2510	20.0	306	87	14	2439	19.4		
1899	126185	3643	28.8	706	193.7	2674	21.1	343	82	15	2607	20.6		
1900	126951	3438	27.0	762	221.6	2897	22.8	365	96	19	2820	22.2		
1901	127823	3386	26.5	654	193.7	2578	20.1	338	101	18	2495	19.5		
1902	130339	3357	25.7	530	157.8	2330	17.8	414	117	34	2247	17.2		
1903	131079	3304	25.2	523	158.2	2147	16.3	336	105	27	2069	15.7		
1904	131908	3100	23.5	595	191.9	2353	17.8	353	106	27	2274	17.2		
1905	132742	3193	24.0	467	146.2	2231	16.8	383	85	37	2183	16.4		
1906	133583	3418	25.5	533	155.9	2263	16.9	415	107	37	2193	16.4		
Averages for years 1897-1906.	129061	3413	26.4	627	183.1	2458	19.0	355	96	...	2385	18.4		
1907	134438	3348	24.9	508	151.7	252	17.4	383	104	45	2293	17.0		

\* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity and have died in public institutions elsewhere.

The "Public institutions" to be taken into account for the purposes of these tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses, and lunatic asylums. A list of the institutions in respect of the deaths in which corrections have been made should be given on the back of this table.

Area of District in Acres (exclusive of area covered by water) .....

At Census 1901 .....6978

Added ... .. 453

Total.....7431

Total population at all ages .....127,626  
 Number of inhabited houses ..... 27,429  
 Average number of persons per house..... 4.6  
 In November, 1901, an addition was made to the Borough, viz.—Total persons ..... 1,590  
 At Census of 1901. }  
 127,626  
 27,429  
 4.6

I. Institutions within the district receiving sick and infirm persons from outside the district.	II. Institutions outside the district receiving sick and infirm persons from the district.	III. Other Institutions, the deaths in which have been distributed among the several localities in the district.
Union Workhouse. Blackburn and East Lancashire Infirmary. Blackburn Infectious Diseases Hospital. Private Nursing Home, Mayfield, West Park Road.	Prestwich Asylum. Whittingham Asylum. Winwick Asylum. Lancaster Asylum.	Infirmary, Wigan. Workhouse, Bradford. Cottage Hospital, Accrington. St. Mary's Hospital, Manchester. Culcheth Hall, Manchester. Private Residence, Scarborough. Private Residences, Blackpool. Private Nursing Home, Manchester.

Is the Union Workhouse within the District?..... .. Yes.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

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Area of District in Acres (exclusive of area covered by water) .....	At Census 1901 .....	6978	Total population at all ages .....	127,626	At Census of 1901.
Added ... ..	453		Number of inhabited houses .....	27,429	
			Average number of persons per house.....	4.6	
Total.....		7431	In November, 1901, an addition was made to the Borough, viz.—Total persons .....		1,590

I.		II.		III.	
Institutions within the district receiving sick and infirm persons from outside the district.		Institutions outside the district receiving sick and infirm persons from the district.		Other Institutions, the deaths in which have been distributed among the several localities in the district.	
Union Workhouse. Blackburn and East Lancashire Infirmary. Blackburn Infectious Diseases Hospital. Private Nursing Home, Mayfield, West Park Road.		Prestwich Asylum. Whittingham Asylum Winwick Asylum. Lancaster Asylum.		Infirmary, Wigan. Workhouse, Bradford. Cottage Hospital, Accrington. St. Mary's Hospital, Manchester. Culcheth Hall, Manchester. Private Residence, Scarborough. Private Residences, Blackpool. Private Nursing Home, Manchester.	

Is the Union Workhouse within the District?..... .. Yes.



TABLE II. (continued). — Vital Statistics of separate Localities in 1907 and previous years.

NAMES OF LOCALITIES.	8. ST. MARY'S.				9. ST. MATTHEW'S.				10. ST. THOMAS'.				11. PARK.				12. ST. LUKE'S.				13. ST. MARK'S.				14. ST. ANDREW'S.			
YEAR.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all ages	Deaths under 1 year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all ages.	Deaths under 1 year	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.	Population esti- mated to middle of each year.	Births regis- tered.	Deaths at all Ages.	Deaths under 1 year.
	a	b	c	d	a	b	c	d.	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d
1897	1896	53	76	18	...	...	...	...	...	...	...	...	34597	1045	626	191	...	..	...	...	16061	420	311	107	...	...	...	...
1898	7011	195	173	61	10425	363	230	62	11767	258	174	48	8966	274	179	50	8808	279	197	64	7921	223	150	53	8652	266	166	50
1899	6991	185	217	41	10419	362	274	88	11949	282	205	58	9014	261	183	53	8809	293	204	65	7995	211	152	46	8797	305	165	53
1900	6971	164	226	47	10413	328	233	72	12136	290	223	71	9062	254	188	39	8810	287	236	80	8066	192	168	45	8940	168	190	55
1901	6952	148	190	57	10393	287	217	71	12340	306	202	58	9111	242	167	36	8811	277	210	64	8153	223	136	35	9106	270	154	46
1902	6934	173	156	24	10333	310	186	45	12572	332	210	65	9156	239	161	40	8811	249	189	45	8694	238	146	41	10019	254	158	45
1903	6912	157	146	36	10274	309	193	53	12742	318	183	42	9204	240	172	41	8812	265	155	44	9059	254	130	38	10196	242	143	37
1904	6893	136	150	31	10214	276	201	54	12938	293	216	63	9246	226	154	37	8813	237	154	45	9152	226	148	44	10371	234	171	48
1905	6874	159	153	28	10155	275	183	36	13129	303	180	40	9293	248	152	39	8814	261	168	54	9242	223	143	27	10543	256	151	32
1906	6854	163	167	42	10107	307	178	41	13331	287	172	39	9338	263	174	39	8814	236	164	53	9334	262	157	49	10718	252	123	21
1907	6834	164	154	43	10039	290	193	42	13544	295	211	37	9382	252	146	37	8815	244	175	50	9420	248	156	36	10888	275	160	31

There were only Seven Wards previous to 1898.





# COUNTY BOROUGH OF BLACKBURN

## DEATH RATES IN Enumeration Districts.





# BLACKBURN.

REGISTRATION SUB-DISTRICTS.

*Typhoid Infected Houses* •











## NOTES TO TABLES IV. AND V.

- (A) In Table IV., all deaths of "Residents" occurring in public institutions whether within or without the district, are to be included with the other deaths in the columns for the several age groups (columns 2-8). They are also, in columns 9-15, to be included among the deaths in their respective "Localities" according to the previous addresses of the deceased as given by the Registrars. Deaths of "Non-Residents" occurring in public institutions in the district are in like manner to be EXCLUDED from columns 2-8 and 9-15 of Table IV.
  - (B) See notes on Table I. as to the meaning of "Residents" and "Non-Residents," and as to the "Public Institutions" to be taken into account for the purposes of these Tables. The "Localities" in Table IV. should be the same as those in Tables II. and III.
  - (C) All deaths occurring in public institutions situated within the district, whether of "Residents" or of "Non-Residents," are, in addition to being dealt with as in note (A), to be entered in the last column of Table IV. The total number in this column should equal the figures for the year in column 9, Table I.
  - (D) The total deaths in the several "Localities" in columns 9-15 of Table IV. should equal those for the year in the same localities in Table II., sub-columns c. The total deaths at all ages in column 2 of Table IV. should equal the gross total of columns 9-15, and the figures for the year in column 12 of Table I.
  - (E) Under the heading of "Diarrhoea" are to be included deaths registered as due to Epidemic diarrhoea, Epidemic enteritis, Infective enteritis, Zymotic enteritis, Summer diarrhoea, Dysentery and Dysenteric diarrhoea, Choleraic diarrhoea, Cholera and Cholera Nostras.
- In addition, and as regards deaths of children UNDER ONE YEAR OF AGE, under the heading "Diarrhoea" in column 3 (Table IV.) are to be included all deaths classified as "Diarrhoeal diseases" in Table V.
- Under the heading of "Enteritis" in Table IV., are to be included only deaths over ONE YEAR OF AGE registered as due to Enteritis, Mucro-enteritis, Gastro-enteritis, Gastric catarrh, Gastritis, and Gastro-intestinal catarrh, unless from information obtained by enquiry from the certifying practitioner or otherwise, the Medical Officer of Health should have reason for including such deaths under the specific term "Diarrhoea." Deaths from diarrhoea secondary to some other well-defined disease should be included under the latter.
- (F) Under the headings of "Cancer" and "Puerperal fever" should be included all registered deaths from causes comprised within these general terms. Thus: Under "Cancer" should be included deaths from Cancer, Carcinoma, Malignant disease, Scirrhus, Epithelioma, Sarcoma, Villous tumour, and Papilloma of bladder, Rodent ulcer. Under "Puerperal Fever" are to be included deaths from Pyæmia, Sepsicæmia, Sæpæmia, Pelvic peritonitis, Peri- and Endo-Metritis occurring in the Puerperium.
  - (G) Under "Congenital Defects" in Table V. are to be included deaths from Atelectasis, Icterus neonatorum, Navel hæmorrhage, Malformations, and Congenital hydrocephalus.
  - (H) Under "Tuberculous Meningitis" are to be included deaths from Acute hydrocephalus.
  - (I) Under "other Tuberculous Diseases" are to be included deaths from Tuberculosis, Tuberculosis of bones, joints and other organs, Lupus and Scrofula.
  - (J) All deaths certified by registered Medical Practitioners and all inquest cases are to be classed as "Certified"; all other deaths are to be regarded as "Uncertified."

TABLE V.—INFANTILE MORTALITY DURING THE YEAR 1907.  
DEATHS FROM STATED CAUSES IN WEEKS AND MONTHS UNDER ONE YEAR OF AGE.

CAUSE OF DEATH.		Under 1 Week	1-2 Weeks	2-3 Weeks	3-4 Weeks	Total under 1 Month	1-2 Months	2-3 Months	3-4 Months	4-5 Months	5-6 Months	6-7 Months	7-8 Months	8-9 Months	9-10 Months	10-11 Months	11-12 Months	Total Deaths under One Year.
All Causes.	Certified	101	20	22	15	158	48	40	28	25	31	30	24	32	18	25	31	490
	Uncertified	11	1	...	...	12	1	2	1	1	...	...	...	...	...	1	...	18
Common Infectious Diseases.	Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Chicken-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	...	...	...	...	...	...	...	1	1	1	...	1	4	1	3	2	14
	Scarlet Fever...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
	Diphtheria, including Membranous Group	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2
	Whooping Cough	1	...	...	...	1	1	2	...	1	...	1	1	2	2	1	5	17
Diarrheal Diseases	Diarrhœa, all forms	...	1	4	...	5	6	5	2	6	4	5	1	6	...	...	...	40
	Enteritis {Muco-Enteritis and Gastro-Enteritis}	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wasting Diseases.	Gastritis, Gastro-intestinal Catarrh.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Premature Birth	64	4	5	...	73	1	2	...	...	...	...	1	...	...	...	...	77
Tuberculous Diseases.	Congenital Defects	14	6	2	2	24	2	2	...	...	2	...	...	...	...	...	...	30
	Injury at Birth	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Tuberculous Diseases.	Want of Breast-milk...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Atrophy, Debility, Marasmus	4	...	1	3	8	9	2	6	5	2	4	1	5	1	3	2	48
Tuberculous Diseases.	Tuberculous Meningitis	...	...	...	...	...	2	...	...	1	...	...	...	1	...	1	3	8
	Tuberculous Peritonitis: Tabes Mesenterica	...	...	...	...	...	1	4	2	2	1	2	1	1	...	...	4	18
Tuberculous Diseases.	Other Tuberculous Diseases	...	...	...	...	...	1	...	...	1	1	...	...	1	...	...	1	4
	Erysipelas	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Tuberculous Diseases.	Syphilis	...	...	...	...	...	1	1	...	1	...	...	...	...	...	...	...	3
	Rickets	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	2
Tuberculous Diseases.	Meningitis ( <i>not Tuberculous</i> )	...	...	...	...	...	...	1	...	...	1	2	...	...	...	1	...	5
	Convulsions	5	4	2	2	13	4	2	1	...	1	1	...	...	...	...	...	22
Tuberculous Diseases.	Bronchitis	...	1	3	...	10	5	5	...	1	8	4	4	1	4	5	1	52
	Laryngitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tuberculous Diseases.	Pneumonia	1	1	2	...	4	6	6	5	3	7	7	8	4	7	10	5	72
	Suffocation, overlaying	...	1	...	...	1	1	3	1	...	...	1	...	...	...	...	...	7
Tuberculous Diseases.	Other Causes	22	6	5	3	36	8	6	3	3	4	5	6	3	3	3	...	83
		112	21	22	15	170	49	42	29	26	31	30	24	32	18	26	31	508

District (or sub-division) of Blackburn.

Births in the year { legitimate - 3220  
illegitimate - 128

Population, estimated to middle of 1907 - 134,438.

Deaths in the year of { legitimate infants - 475  
illegitimate infants - 33

Deaths from all Causes at all Ages - 2293